CHAPTER 2: Waste Management

Purpose and Applicability of Regulations

Everyone generates waste on a daily basis and is subject to the waste regulations. When the waste is improperly handled and disposed of (i.e., illegal dumping along roadsides, in the woods, in illegal landfills, in wetlands, in lakes and streams, or by being improperly burned) both surface and groundwater quality, as well as air quality can be impacted. Your legal responsibility as a generator of any quantity of waste extends from "cradle to grave." This covers the time from when the waste is first generated through its ultimate disposal. State and federal court decisions have consistently upheld that legal liability remains with the original generator, in some instances even after disposal of the waste.

Agencies and Their Laws and Rules

Several different agencies are involved with overseeing proper waste management. State agencies include the Waste and Hazardous Material Division (WHMD), Water Bureau (WB), and Air Quality Division (AQD) of the Michigan Department of Environmental Quality (DEQ); the Department of Labor and Economic Growth (DLEG); and the Michigan State Police (MSP). Federal agencies include the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation (USDOT). In addition, local entities including wastewater treatment plant authorities, local fire departments, and county health departments may have jurisdiction.

Following are Michigan's common waste regulations overseen by WHMD:

- Solid waste regulations under Part 115 (Solid Waste Management) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451), and administrative rules. (Summarized in Section 2.2)
- Scrap tire management including transportation, storage, and disposal by tire retailers, scrap tire haulers, and scrap tire collection site owners under Part 169 (Scrap Tires) of Act 451. Local fire departments also have scrap tire jurisdiction under the fire prevention regulations. (Summarized in Section 2.2)
- Liquid industrial waste regulations under Part 121 (Liquid Industrial Waste) of Act 451. (Summarized in Section 2.3)
- Hazardous waste requirements under Part 111 (Hazardous Waste Management) of Act 451 and administrative rules. (Summarized in Section 2.4)
- Transportation of hazardous materials which includes both liquid industrial waste and hazardous waste under the Hazardous Materials Transportation Act (Public Act 138 of 1998) and Part 111 of Act 451 administrative rules and Part 121 (Liquid Industrial Waste) of Act 451. (Summarized in Sections 2.3 and 2.4)

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- Medical waste under Part 138 (Medical Waste Regulatory Act) of the Public Health Code (Discussed in Section 2.5)
- PCB waste under Part 147 of Act 451 and administrative rules and Part 121 of Act 451 (Summarized in Section 4.5.5)
- Radioactive waste under Part 135 of the Public Health Code and mixed with hazardous waste per Part 111 of Act 451 administrative rules (See Section 2.4.9.n).

Following are federal regulations:

- Hazardous waste regulations overseen by WHMD and EPA are in the federal Resource Conservation and Recovery Act (RCRA) contained in Title 40, Parts 260-279, of the Code of Federal Regulations (40 CFR 260-279).
- Transportation regulations for hazardous materials overseen by MSP and USDOT are contained in 49 CFR Parts 100-199. (See Chapter 4)
- Land application requirements overseen by WHMD and EPA are in 40 CFR Part 257. (See Section 2.2)
- PCB materials and waste regulations overseen by EPA are in the federal Toxic Substances Control Act (TSCA). (See Section 4.5.5)
- Radioactive waste regulations overseen by the WHMD and U.S. Nuclear Regulatory Commission (NRC). (See Section 2.4.9.o)

2.1 Waste Reduction and Recycling

You need to know what types of waste and how much waste is being generated before beginning a waste reduction or recycling program, and to determine what waste regulations apply to the business. Resources to help you in this task include:

- DEQ waste and recycling publications at **www.deq.state.mi.us/pubcenter**.
- Section 2.4.1. and 2.4.2 regarding waste determinations.
- EPA guidance to help identify hazardous waste and waste minimization practices at **www.epa.gov/epaoswer/hazwaste/minimize/index.htm**.
- Retired Engineer Technical Assistance Program (RETAP), a free, nonregulatory, voluntary waste and energy assessment program, is available to Michigan businesses with 500 or fewer employees. Chapter 10 also provides additional tips on potential savings by incorporating pollution prevention.

Identifying Wastes and Waste Reduction Opportunities

Company employees can conduct a waste survey to properly identify the types and quantities of waste generated at the site and determine options how to reduce waste generation. A survey also helps to identify waste streams that may be a regulated hazardous waste (see Section 2.4 for more information). Look over Chapter 10 for more specific pollution prevention ideas to watch out for when evaluating your company's practices. When you conduct your waste survey:

- Tour the whole facility and ask employees questions about work processes and the waste generated. Identify what is regulated as a hazardous waste, what can be managed as a solid waste, and how much waste is generated. Ask for suggestions about how waste could be reduced. Consider all wastes that are being generated from the different facility areas, including the offices.

- Trace all chemical purchases for each step of every process or activity in the facility. Consider whether materials can be substituted that would generate less or no hazardous waste.

- Identify where in-house recovery and reuse of hazardous materials are possible. If you are interested in recycling on-site, see Section 2.4 for management requirements for some materials. Review the regulations or contact the WHMD district office (see Appendix C for telephone numbers) to determine if you need to be permitted as a hazardous waste treatment facility. Also, check with the AQD district office to see if you need an air quality permit for your proposed recycling process.

- Observe to see if employees are creating more hazardous waste by mixing other waste with known hazardous waste. For example, your facility can reduce its volume of hazardous waste by not placing nonhazardous paints in the same container as waste solvents.

- Determine if different wastes are being mixed together that shouldn't be because it creates problems for recycling. Consider separating easily sorted wastes like plastics, metals, packaging materials, and light bulbs. Mixing wastes usually makes recycling less profitable or difficult, and in some cases impossible which means more expensive disposal costs. Discuss with your recycler what materials may be put together so you can get top price for your recyclables. For example, you may get more money if office paper is separated from other paper goods or different types of metal and plastics are separated. Find recyclers in the Recycled Materials Market Directory at www.michigan.gov/deqrmmd.

- Develop and maintain accurate inventory control of all products. This helps to eliminate excessive inventory. Buying in bulk or ordering on a schedule will not be cost effective if the product has to be disposed of because its shelf life expired.

If the facility finds it has unwanted materials that can be used as a product, it might be possible to find another company looking for the material by using a Materials Exchange. Go to **www.michigan.gov/deqrecycling** for links. This is also a tool to find materials you could use.

Once you know where the wastes are being generated, you may be able to reduce disposal costs by implementing waste reduction and recycling programs. Along with saving money on disposal costs, you might save money by purchasing less material and even earn money by selling the collected materials. You need to have both management and worker support to make these programs work.

Waste reduction involves implementing activities that result in less waste being generated. These activities include the following:

- Change processes so less scrap is created.
- Purchase supplies that have less packaging.
- Have materials shipped in returnable and reusable containers.
- Use materials on a "first in, first out" basis so products don't become too old to use.
- Replace disposable materials with reusable and recyclable materials.
- Establish an incentive program that encourages workers to suggest ways to reduce waste.
- Train employees in waste reduction methods.
- Install reclamation units to reduce the amount of waste needing disposal. For example, recover spent solvents from parts washers.

Recycling involves converting materials from the waste stream into other usable goods. The first step for facilities involves the collection of those materials. If the materials cannot be used in-house, then the collected materials are marketed through private brokers or local community recycling programs. Several areas in Michigan now have reuse centers that offer these materials for community or school activities.

Check with your broker or local program to find out what they accept, how the materials must be prepared, and other collection details. You may need to use different brokers or several different recycling programs to market your collected materials because the individual broker or program might not handle the type or volume of material you have.

Commonly collected materials include:

- Drums and other containers
- Glass
- Paper, including office paper and corrugated cardboard
- Scrap metal
- Wood pallets
- Other materials as described in Section 2.4.8

To find companies that accept the recyclable materials you collect, search the **"Recycled Materials Market Directory"** various categories via the DEQ's web site at **www.michigan.gov/deqrecyling** (select "Online Services"). If you do not have access to the Internet or have a material not listed, call (800) 662-9278 and ask for the recycling coordinator..

Recycling of solid waste is regulated under Part 115 of Act 451 and administrative rules. Discuss recycling and other waste requirements with the WHMD district office (Appendix C). Materials must not be accumulated speculatively for recycling purposes. At least 75% of the collected material must be recycled into marketable raw materials or new products, or transferred to a different site for recycling within 1 year, or 3 years if it is low-hazard industrial waste.

It is possible to petition a waste to be considered for an exemption as a site or source separated recyclable material: For example, see the existing exemption for Scrap Wood. This information would be useful if company wants to send wood pallets to a facility to be recycled or operate their own recycling program.

Some solid wastes may meet the definition of “inert materials” and may be used on land if all the conditions in R 299.4114 are met. See the rule for specific requirements.

- Uncontaminated brick, masonry, pavement and broken concrete uses as fill, riprap, slope stabilization or other construction.
- Excavated soil.
- Rock.
- Trees, stumps, or other land clearing debris.
- Some low hazardous industrial waste uses.
- Chipped tires.
- Other materials approved by WHMD.
  - Scrap Tire Designation of Inertness #04-1-001

2.2 Solid Waste Management

No matter how effective your waste reduction and recycling programs are, you probably still have some other solid wastes that can be processed to obtain a value from it or it will need to be disposed of with associated costs. Solid waste includes garbage, rubbish, yard waste, ashes, incinerator ash and residue, nonhazardous industrial wastewaters and sludges containing 1% or more solids that are not handled under water regulations per Chapter 3, and solid commercial and industrial waste including vegetable and fruit by-products. Solid waste management as discussed in this section does not pertain to hazardous waste that is in a solid form. Facilities may petition the WHMD to designate a solid waste so it can be managed as an inert material, compostable material, or low-hazardous industrial waste.

2.2.1 Land Application of Solid Waste

Food processing residues or by-products may have some value. “Food processing residuals” means any of the following:

(a) Residuals of fruits, vegetables, aquatic plants or field crops.

(b) Otherwise unusable parts of fruits, vegetables, aquatic plants, or field crops from the processing thereof.

(c) Otherwise unusable food products which do not meet size, quality, or other product specifications and which were intended for human or animal consumption.

In some instances the food processing by-products and residuals may be used for:

- Fertilizers for crop production (see below)
- Animal feed source (Residues are not considered a waste when used as a feed meeting MI Department of Agriculture conditions. A Commercial Feed License is required per Act No. 120 of 1975, as amended. See information at www.michigan.gov/mda-feed. Contact MDA Pest and Plant Management Division at 517-373-9749. However, if the residues spoil e.g. ferment or become contaminated before being used as a feed source, then they must be handled as a waste.)
- Energy generation (e.g. using a biomass generator or methane digester. A solid waste processing permit may be required from WHMD. There are also Water Bureau issues. Discuss your situation with WHMD and WB district office. (See Section 3.6.4)

Before a company can consider if land application is an option, they need to:

1. Characterize the waste to determine if it is a hazardous waste (see Section 2.4.2). If it is hazardous waste, it can not be land applied.
2. Discuss their proposed land application process with the district office (see Appendix C), and obtain proper authorization for the land application if the residuals are not hazardous waste. The specific authorization will depend if it meets the definition of being a food processing residue, if it contains other wastes, and if it fails the paint filter test.

   Due to proposed regulatory amendments, the following information may change. The different land application options are overseen by the:

   - The Water Bureau when the conditions meet Part 31 requirements and the food processing residuals contain less than 1% solids (see Section 3.6.5). This option may also include WHMD requirements for handling liquid industrial waste (see Section 2.3).

   - The Michigan Department of Agriculture (MDA) when the conditions meet the MDA Nutrient Generally Accepted Agriculture Management Practices (GAAMP). This includes:
     - No releases
     - Can not create nuisances, including odors
     - Applied at agronomic rates

     Information is available at www.michigan.gov/mda "Farming" "Environment" "GAAMPS". Call MDA at 517-335-4849 to discuss GAAMP requirements.

   - The Waste and Hazardous Materials Division when the conditions meet the DEQ Agricultural Use Approval. Facilities that land apply food processing residuals under the DEQ Agricultural Use Approval, including wastewaters containing 1% or greater concentration of solids, must meet specific requirements. Go to www.michigan.gov/deqwaste "Solid Waste" and under Information heading select "Exemptions and Guidance" "Agricultural Use Approval"
     Approval Form
     Appendix B1
     Appendix B2
     Appendix C
     Appendix D - Site Identification Form

     Requirements include:
     - Disposal plan approved by WHMD
     - Sampling and analyses of wastes
     - Crop fertilization demonstrated by laboratory soil tests
     - Application limits, including winter application restrictions and isolation distances
     - Appropriate storage before application
     - Spill prevention practices during transportation
     - Annual reports due by January 31
     - Record keeping for at least 5 years since last land application and obtaining a site identification number using the site identification form (SIF).

2.2.2 Composting

Composting operations involving food processing residuals will require a solid waste processing permit from the WHMD and would be subject to the Water Bureau's Storm Water Program requirements (see Chapter 3). If you want to establish a composting operation at your site, contact the WHMD District Office to discuss your situation. The WHMD is in the process of developing specific rules regarding composting operations. Training modules for composting operators is available from the Michigan Recycling Coalition. Contact that organization at (517) 327-9207.

Requirements for hauling food processing residuals and other wastes to a commercial composting operation will depend on if it is mixed with other wastes and if it fails the paint filter test. See Sections 2.2.3 and 2.3.

2.2.3 Solid Waste Disposal

Examples of solid waste that usually require disposal include: non-recyclable office paper, break room waste such as discarded food and packaging, non-recyclable packaging materials including empty containers (see Section 2.4.1.d.2 for definition of "empty"), and other materials which are not hazardous waste.

Wastes prohibited from landfill disposal under Part 115 of Act 451 include:

- Liquid waste
- Used oil
- Empty drums unless crushed
- Beverage containers
- Lead acid batteries
- Yard clippings
- Whole tires
- Sewage
- Asbestos unless landfill meets specific requirements
- Hazardous waste from small quantity and large quantity generators (see Section 2.4)
- Low level radioactive waste
- PCB waste unless landfill meets specific requirements

For more information about banned waste, go to **www.michigan.gov/deqprohibitedwaste**. Talk to the landfill authority about what they accept.

Open dumping and open burning (see Section 2.2.3) of business waste is prohibited.

Before solid waste is hauled to a licensed disposal facility or permitted solid waste processing facility:

- Store it in leak-proof, covered containers. This will help keep the waste from blowing away, prevent access by rodents and other animals, and reduce odor problems.
- Check if your local authorities have an ordinance that requires a privacy-type fence around the dumpster and how often it must be picked up. Avoid keeping it long enough that neighbors complain about odors.

- Discuss using solid waste piles and necessary permits with your WHMD district office (Appendix C).
- Check if the licensed disposal facility accepts that type of waste. They may request documentation like test results showing it is not a hazardous or liquid waste.

Part 115 of Act 451 requires that solid waste be disposed of at licensed disposal facilities.

- You can haul your own waste to a licensed landfill, incinerator, or transfer/processing facility, or
- Contract with a solid waste hauler to transport your solid waste to an approved facility.

Currently there are no WHMD licensing requirements for haulers of solid waste (except scrap tires haulers needing to be registered–see Section 2.2.4), but there are requirements regarding the waste carrying portion of the vehicle. You should know how the hauler handles and disposes of waste because you can be held liable for damages and cleanup costs if the waste is improperly managed. Each county has a solid waste management plan that identifies where solid waste generated in the county can be transported for disposal. If you are considering shipping your solid waste out of your county, check with your county planning agency (see the list of planning agencies at **www.michigan.gov/deqwaste**). You may also contact your WHMD district office (see Appendix C) about:

- Shipping solid waste out-of-county.
- Handling sludge from industrial processes, and trench or drain cleanout residue under either the solid waste rules or as liquid industrial waste (see Sections 2.3 and 3.3.4).
- Whether or not your waste is regulated as a solid waste, or how to properly manage it.

Manifests are not required for hauling and disposing of solid waste, with the exception of scrap tires (see Section 2.2.4). Although you don't have to manifest solid waste, you may want to keep records of when, where, and how much solid waste was removed from your business. This practice gives you an accurate record of waste disposal for management purposes and is valuable if a liability question arises.

2.2.3.a Open Burning

Open burning of business trash, and any burning that creates smoke or odor nuisances, is prohibited throughout Michigan under the air quality regulations. Open burning is where smoke and air pollutants are released directly into the air. In addition, buildings may not be burned for the purpose of demolition, unless it has been approved as part of a fire department training program. On-site incineration of some solid waste is allowed if a permit is obtained from DEQ's AQD and approved under local laws. Contact your AQD district office (see Appendix C) for more details.

Open burning of brush, logs, stumps, and trees is regulated by the AQD; the WHMD; the Department of Natural Resources (DNR); and in many cases, local authorities. If you are doing any landscaping on your property and want to burn the wood waste, you must obtain permission from the governing agency for that area. More information about open burning and list of communities with local ordinances submitted to the WHMD is available online at: **www.michigan.gov/deqair** ("Open Burning Information").

2.2.4 Scrap Tires

It is illegal for anyone to discard scrap tires on property which is not in compliance with storage, bonding, and registration requirements under Part 169 (Scrap Tires) of Act 451. Scrap tires means tires that are no longer being used for their original intended purpose and include used vehicle tires and hi-low or forklift and other discarded equipment tires. Scrap tire information is available at **www.michigan.gov/deqwaste** (select "Scrap Tires")

Basic requirements for scrap tire generators:

- Store scrap tires in a safe manner at the location of generation to reduce safety and fire risks. Check with the local fire department about local requirements. Sites having 500 or more scrap tires must register as a scrap tire collection site and meet a number of storage requirements. Requirements and common violations can be found at the above web site.

- Options for hauling tires to an authorized site:
  - ✓ You may haul 7 or less of your own scrap tires at a time to a proper recycling or disposal site. This includes a licensed landfill, a location that has legally accumulated scrap tires below the regulatory threshold qualifying as a collection site, an end user, a scrap tire processor or a tire retailer. Lists of registered facilities are at www.michigan.gov/deqwaste "Scrap Tires" "Information" "Lists of Facilities."
  - ✓ Check if your solid waste hauler will accept. Most do not allow used tires to be put in the trash. If they do accept them, they usually have limits on how many they will accept. Whole scrap tires can no longer be put into the landfill, but some landfills accept them for further processing before they are put into the landfill or they sends the tires to another scrap tire processor.
  - ✓ Hire a registered scrap tire hauler. The hauler must give you a Scrap Tire Transportation Record (Form EQP 5128). Keep that record at least 3 years from shipment date. Lists of scrap tire haulers are on the above website (under the Information heading select "Lists of Facilities.")

    Haulers must register annually with the WHMD. Haulers must carry their registration, which includes the expiration date and a list of collection sites where they can take the tires, and the original manifest when transporting scrap tires. In addition, they must visibly display their registration number on the vehicle transporting the tires. Compare the disposal site listed on the manifest to the sites listed on the hauler's current registration. If a hauler is not taking the scrap tires to a disposal site listed on its registration, question it before shipping your scrap tires. You can call the Scrap Tire Program at (517) 241-2924 or the WHMD district office for information about the compliance status of a hauler or disposal site, or if you have questions about becoming a registered hauler.

If you are offered extremely low prices for scrap tire disposal, you might want to question whether the hauler and/or disposal facility is simply accumulating the tires without intending to comply with the regulations.

2.3 Liquid Industrial Waste

Food processors often produce liquid industrial waste. Liquid industrial waste includes any waste that meets all the following conditions:

- Fails the paint filter test (See Section 2.4.2.c), and
- Is not exempted under Part 121 of Act 451, and
- Is not regulated as hazardous waste (see Section 2.4). Since liquid hazardous waste generated by a conditionally exempt small quantity generator (CESQG) is not required to be manifested under Part 111 of Act 451, the CESQG may manage and ship the liquid hazardous waste as Part 121 liquid industrial waste or they may choose to ship as a Part 111 hazardous waste. Some disposal companies may require it to be shipped as hazardous waste.

Common examples of liquid industrial waste include food processing residuals that fail the paint filter test, used oil that is being recycled, storm sewer and sanitary sewer clean-out residue, used cooking oils, grease trap clean-out residue, industrial wastewater, uncontaminated precipitation removed from secondary containment structures, antifreeze that isn't a hazardous waste, some off-specification commercial chemical products, and other liquid waste.

Liquid industrial waste management is overseen by several entities:

- The WHMD oversees management at liquid industrial waste generator sites, the permitting and registering of liquid industrial waste transporters, destination facility requirements, and land application under conditions listed in Section 2.2.1.
- The WB oversees the discharge and permitting of liquid wastes into surface waters and into groundwater (see Chapter 3).
- Local publicly owned treatment works if the business is connected to a municipal sewer system. You must obtain permission from the sewer authority before discharging waste to the sewer.
- Other local agencies, which vary between communities, which oversee local ordinances. Authority is often under the county or city zoning or building office, the public health department's environmental health section, or fire department.
- The Michigan State Police, Motor Carrier Division and USDOT oversee transportation requirements if the liquid waste is a USDOT hazardous material (see Chapter 4).
- Insurance companies may have requirements for storage and shipping.

If you generate liquid industrial waste, you need to:

- Characterize the waste to determine if non hazardous or hazardous (see Section 2.4.2).
  - ✓ Keep records of waste evaluations and other information used to determine the type of waste at least three years after the waste is shipped for treatment, storage, or disposal.
- Meet storage requirements:
  - ✓ Protect containers from weather, fire, physical damage and vandals.

- ✓ Containers must be labeled so workers know what is in it (e.g. “Used Oil” - see Section 2.4.9.a for more used oil requirements).
- ✓ Manage waste to prevent releases into air, soil, drains, surface water or groundwater
  - Containers must be maintained in good condition.
  - Any leaking containers must be replaced.
  - Containers must be kept closed except when adding or removing waste.
  - Containers must be compatible with the type of waste being stored in them. The MSDS for the virgin ingredients may provide some recommendations or see websites like **www.flw.com/material/index.html**.
  - Incompatible wastes must not be placed in the same container.
- ✓ Liquid industrial waste that has a flashpoint of or above 140 degrees and below 200 degrees Fahrenheit and stored in aboveground containers and tanks would also be regulated as a flammable and combustible liquid by the WHMD. See the requirements discussed in Chapter 4. You may also be regulated by the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids available at www.michigan.gov/miosha, and the local municipality’s fire prevention code.
- ✓ Liquid industrial waste in an underground storage tank that is a regulated substance under Part 211 (Underground Storage Tanks) of Act 451 would have additional requirements under the tank regulations (see Chapter 4).
- ✓ There are no state time limits requirements on storing liquid industrial waste at your facility, but local ordinances may have limits.

- Obtain a site identification number when shipping waste off-site with a manifest if one is not already assigned to the site (see Section 2.4.4)
- Use manifests when shipping or meet alternative shipping record requirements listed in Section 2.4.5. The liquid industrial waste codes that are listed on the manifest can be found in the manifest instructions available at www.michigan.gov/deqwaste “Uniform Manifest Information”.
- Hire a permitted and registered transporter to take the waste to an appropriate disposal facility (see Section 2.4.10) or meet the requirements to haul the company’s own waste (see Section 2.4.5).
- If operating an on-site reclamation, treatment, or disposal facility, keep records of all liquid industrial waste produced and reclaimed, treated or disposed at the facility.
- If liquid industrial waste is treated, stored or disposed of in a surface impoundment, obtain the applicable Part 31 (Water Resources Protection) of Act 451 discharge permit (see Chapter 3) and manage leachate appropriately. Discuss specific requirements with the WHMD and WB district office (see Appendix C).
- Report releases to the Pollution Emergency Alerting System at (800) 292-4706 that could threaten the public health, safety, or welfare, or environment, or that has reached surface water or groundwater and prepare written report. If waste is subject to other regulations that require release reporting, also meet those requirements (see Chapter 6).
- Cleanup all spills (see Chapter 6).
- Depending on the liquid waste, emergency planning may be required if threshold management quantities are reached (see Chapter 6).

The liquid industrial waste inspection checklist used by waste inspectors is available at **www.deq.state.mi.us/documents/deq-whm-hwrp-eqp5191.pdf** if the facility wants to do an internal compliance evaluation.

TABLE 2.2 LIQUID INDUSTRIAL WASTE GENERATOR SUMMARY (includes most used oil)

	Amount generated in calendar month	Maximum amount that can be accumulated on-site	Maximum time period before waste must be shipped
Liquid Industrial Waste and Used Oil Generator	Any amount[1]	No maximum amount under state regulations.[2]	No state time limit as long as containers in good shape and closed, but check local ordinances for any time limits.

[1]See Parts 111 and 121 for possible liquid industrial waste exemptions.

[2] Other regulations requiring containment and emergency planning may apply when threshold management quantities are met e.g. federal Spill Prevention Control and Countermeasure (SPCC) for oils and state Part 5 rules "Spillage of Oil and Polluting Materials" (see Chapters 4 and 6) and any local ordinances.

2.4 Hazardous Waste

All waste generators except households are required by law to:

- Determine if any of their waste is hazardous waste.
- Keep records of waste evaluations and other information used to determine the type of waste at least three years after the waste is shipped for treatment, storage, or disposal.
- Properly manage the waste.

It is highly recommended you develop a record keeping system where all the waste determination information, manifests, land disposal restrictions records, reports, contingency plans, training records etc. are filed so you can easily find and provide these documents upon an inspection.

If you want to conduct an internal compliance audit, you may find the waste inspection checklists helpful. They are online at www.michigan.gov/deqwaste "Hazardous and Liquid Industrial Waste" "Hazardous and Liquid Industrial Waste Management" under the Forms heading. More than one inspection form may apply depending on site activities.

When reading this guidebook, do not confuse the term "hazardous waste" with "hazardous material." Each term has specific regulatory definitions and requirements. Hazardous waste shipped with a manifest is also a USDOT hazardous material. There are some wastes that are not regulated as a hazardous waste, yet are regulated as a hazardous material.

The following information discusses the general requirements regarding hazardous and universal waste. More detailed information is provided for common waste streams in Section 2.4.9. The specific requirements that you must follow depend upon the quantities of hazardous waste generated and accumulated within a specific time period at your business. This chapter focuses on generator requirements and not hazardous waste treatment, storage and disposal

facilities (TSDF) and transporter requirements. If you have any questions about hazardous waste management, call your environmental consultant or the WHMD district office to discuss applicable requirements.

Note: The hazardous waste rules were under revision process at the time of publication. Announcements regarding public comment periods and when the rules are finalized will be published in the *DEQ Calendar* (*www.michigan.gov/deqcalendar*).

2.4.1 Defining Hazardous Waste

Federal and state regulations define wastes as hazardous if they are either included on specific lists or exhibit certain hazardous characteristics. These wastes have been determined to be a threat to human health or the environment. Hazardous wastes have specific numbers assigned to the different constituents or processes that generate the waste as described in Section 2.4.1.a and 2.4.1.b. Depending on the waste and how it was generated, you may have some waste which have several waste numbers that apply. Regulations allow businesses the option of handling some specific wastes as a "universal waste" instead of managing them as a hazardous waste. Universal waste management is further discussed in Section 2.4.1.c and in the following sections.

Examples of hazardous wastes shipped in 2006 by Michigan fruit and vegetable processors	
D001	Ignitable wastes
D009	Mercury
D011	Silver
D018	Benzene
D039	Tetrachloroethylene (could also be a U 210 listed waste)
D040	Trichloroethylene
F005	Listed solvents

2.4.1.a Listed Waste

Listed waste includes waste materials listed by name or generation source on the federal and Michigan lists of hazardous waste. If listed waste is mixed with other waste, then that mixture is also considered a listed waste under the mixture rule, unless it meets one of the regulatory exclusion identified in R 299.9203(7). These excluded wastes are still subject to land disposal restrictions (see Section 2.4.5.c).

You need to know the chemical names, and in some instances the chemical concentrations, for the type of waste produced and/or the process used to determine if it is a listed waste. It is necessary to review the regulations for the complete description of these listed wastes. These wastes either have an EPA waste number which begins with the following letters or a Michigan hazardous waste number which ends with the following letters:

- Waste from listed nonspecific sources - also referred to as the "F" list. The "F" list includes waste from common industrial and manufacturing processes. Food processors may have F001-F005 spent solvents from maintenance activities. These solvents must contain the constituents included in the regulatory descriptions, and if found in a mixture or blend, must also meet the

applicable concentration level before it was used. Besides knowing the constituents of a solvent, proper characterization of "F" solvent waste also depends on how the solvent was used. Depending on the manufacturing activities, other "F" wastes may also be generated. A few of those "F" wastes that have an (H) included in their hazard code are also considered acutely hazardous. Michigan has the same F list as the federal regulations.

F005 listed waste are 'the following spent nonhalogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures and blends containing, before use, a total of 10% or more, by volume, of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002 and F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures"

- Waste from listed specific sources - also referred to as the "K" list. Fruit and vegetable processors don't generate "K" waste. Michigan has the same federal K list and an additional state K waste list.

- Discarded commercial chemical products and spill residues - also referred to as the "P" and "U" lists. Food processors normally do not generate these wastes but could if they need to discard some outdated products. These discarded chemicals used by industry would only be a "U" or "P" waste if the listed chemical is the sole active ingredient in the product. Sole active ingredient means that the chemical is the only ingredient serving the function of the formulation. For example, if you use tetrachloroethylene as a degreaser for cleaning, this is a U210 waste if the product was discarded before being used. It is a F001 waste if it was used for degreasing and then is discarded. Businesses have "P" or "U" wastes only if disposing of unused or off-spec chemicals or when cleaning up a spill of these listed chemical products and/or chemical intermediates having the generic names listed.

  Chemicals included on the "P" list are considered acutely hazardous. "U" wastes include toxic chemicals and chemicals that also display other characteristics such as ignitability. Michigan has the same federal P and U lists and has an additional state U waste list.

2.4.1.b Characteristic Waste

Waste exhibiting any of five characteristics identified in the Michigan and federal regulations is also defined as a hazardous waste. These wastes have an EPA or Michigan hazardous waste number that begins or ends with a "D" or "S". The five characteristics are:

Toxic – Poisonous to humans and other living organisms. These wastes become regulated as a hazardous waste when their constituents meet or exceed a certain concentration level (see Table 2.3). These are sometimes called toxicity characteristic leaching procedure (TCLP) wastes because that is the laboratory method used to determine the concentration level (see Section 2.4.2.c). Hazardous waste numbers are assigned to specific toxic chemicals and include D004 through D043. Fluorescent lamps, dry cell batteries, various metal-bearing solutions, solvents, mercury switches, lead tire weights, some pesticides, some medical related wastes including mercury thermometers and older antiseptics containing mercury from first aid kits, and other organic chemicals are materials that may be toxic wastes.

TABLE 2.3 Characteristic Hazardous Wastes for Toxicity (if waste meets or exceeds the listed concentration)

EPA Hazardous Waste Number	Chemical Abstract Services Number	Material	Extract Concentration milligrams per liter
D004	7440-38-2	Arsenic	5.0
D005	7440-39-3	Barium	100.0
D018	71-43-2	Benzene	0.5
D006	7440-43-9	Cadmium	1.0
D019	56-23-5	Carbon tetrachloride	0.5
D020	57-74-9	Chlordane	0.03
D021	108-90-7	Chlorobenzene	100.0
D022	67-66-3	Chloroform	6.0
D007	7440-47-3	Chromium	5.0
D023	95-48-7	o-Cresol	200.0**
D024	108-39-4	m-Cresol	200.0**
D025	106-44-5	p-Cresol	200.0**
D026	--------	Cresol	200.0**
D016	94-75-7	2,4-D (2,4-Dichlorophenoxyacetic Acid)	10.0
D027	106-46-7	1,4-Dichlorobenzene	7.5
D028	107-06-2	1,2-Dichloroethane	0.5
D029	75-35-4	1,1-Dichloroethylene	0.7
D030	121-14-2	2,4-Dinitrotoluene	0.13*
D012	72-20-8	Endrin (1,2,3,4,10,10-hexachloro-1,7-Epoxy-1,4,4a,5,6,7,8,8a octahydro-1,4-endo, endo-5,8-dimenthano naphthalene)	0.02
D031	76-44-8	Heptachlor (and its Epoxide)	0.008
D032	118-74-1	Hexachlorobenzene	0.13*
D033	87-68-3	Hexachlorobutadiene	0.5
D034	67-72-1	Hexachloroethane	3.0
D008	7439-92-1	Lead	5.0
D013	58-89-9	Lindane (1,2,3,4,5,6-hexa-chlorocyclo-hexane, gamma isomer)	0.4
D009	7439-97-6	Mercury	0.2
D014	72-43-5	Methoxychlor (1,1,1-trichloro-2,2-bis(p-methoxyphenyl)ethane)	10.0
D035	78-93-3	Methyl ethyl ketone	200.0
D036	98-95-3	Nitrobenzene	2.0
D037	87-86-5	Pentachlorophenol	100.0
D038	110-86-1	Pyridine	5.0*
D010	7782-49-2	Selenium	1.0
D011	7440-22-4	Silver	5.0
D039	127-18-4	Tetrachloroethylene	0.7
D015	8001-35-2	Toxaphene ($C_{10}H_{10}C1_8$, Technical chlorinated camphene, 67-69 percent chlorine)	0.5
D040	79-01-6	Trichloroethylene	0.5
D041	95-95-4	2,4,5-Trichlorophenol	400.0
D042	88-06-2	2,4,6-Trichlorophenol	2.0
D043	75-01-4	Vinyl chloride	0.2
D017	93-72-1	2,4,5 TP Silvex (2,4,5-Tri-chlorophenoxypropionic acid)	1.0

* Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

**If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

Ignitable - Starts burning easily; liquids with a flashpoint below 140 degrees Fahrenheit, solids that spontaneously ignite, oxidizing materials, and ignitable compressed gases defined by USDOT regulations 49 CFR 173.115. This includes gases that form flammable mixtures in air. Examples include mineral spirits, methyl isobutyl ketone and other solvents, solvent-based paints, solvent-soaked rags, gasoline, cleaning fluids, naphtha, sludges containing petroleum, and ignitable compressed gas like hydrogen, propane, and acetylene. These wastes have a hazardous waste number of D001.

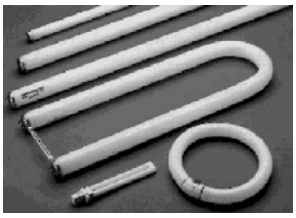
Corrosive - Liquids that dissolve steel or aqueous wastes with a pH less than or equal to 2.0 or greater than or equal to 12.5. Examples include caustics like alkaline cleaners and battery acid. These wastes have a hazardous waste number of D002.

Reactive – Undergoes rapid or violent chemical reaction and necessitates special handling requirements. Examples include organic peroxides, cyanides, sulfides, and explosives. These wastes have a hazardous waste number of D003.

Severely toxic – These Michigan hazardous wastes contain 1.0 ppm or more of a severely toxic material. These materials are regulated at quantities of one kilogram, which is just over two pounds or more. The hazardous waste numbers include 001S through 007S. It is unlikely for most businesses to have severely toxic wastes.

2.4.1.c Universal Waste

Many businesses are still not aware that Michigan adopted the universal waste rule in October 1996, and many companies are not properly handling these wastes. This rule gives facilities the choice of handling specifically identified wastes as a universal waste or continuing to manage them as a hazardous waste. The following may be handled as universal waste:



- Electric lamps including fluorescent, high intensity discharge, sodium vapor, mercury vapor, neon, and incandescent lamps. Broken lamps are not universal wastes. (See Section 2.4.9.e)
- Batteries, including lead acid and dry cell types. (See Section 2.4.9.c and 2.4.9.d)
- Devices containing only elemental mercury, such as thermostats, switches, thermometers, and other devices.
- Pesticides, including certain suspended, canceled, or unused pesticides.
- Consumer electronics including computers, televisions and other equipment containing circuit boards. (See Section 2.4.9.m)
- Pharmaceuticals.

Consider participating in the EPA voluntary partnership program to reduce pesticide risk. See information about the Pesticide Environmental Stewardship Program at www.epa.gov/oppbppd1/PESP

There are two levels of universal waste handlers – a Small Quantity Handler and a Large Quantity Handler. Most companies are NOT Large Quantity Handlers. Do not confuse universal waste handlers with the hazardous waste generator status levels of Small

Quantity Generator and Large Quantity Generator. See Section 2.4.4, 2.4.5, 2.4.7, 2.4.8 and 2.4.9 for more handler requirements. Requirements for universal waste transporters and destination facilities are not discussed in this guidebook.

If a company chooses to manage these waste streams as a universal waste, then this quantity is not included when determining their hazardous waste generator status (see Section 2.4.3). For some companies, this may allow them to reduce their hazardous waste generator status level. For example, a Large Quantity Generator that manages part of its hazardous waste stream as universal waste may be able to become a Small Quantity Generator and be subject to fewer regulations.

Table 2.4 SUMMARY OF UNIVERSAL WASTE HANDLER CATEGORIES

	Small Quantity Handler (SQH)	Large Quantity Handler (LQH)[1]
Amount of all universal waste accumulated at any time	Less than 5,000 kilograms (11,000 pounds)	5,000 kilograms (11,000 pounds) or more
Maximum amount that can be accumulated on-site	Less than 5,000 kilograms (11,000 pounds)	No limit
Maximum time period before waste must be shipped	1 year after generated or received from another facility	1 year after generated or received from another facility
Notification Required	No	Yes, notify online by using MiTAPS or use form **EQP5150** Section 2.4.4
Employee Training & Emergency Response	Yes, see Section 2.4.12 and Chapter 6	Yes, see Section 2.4.12 and Chapter 6
Permitted and registered transporters [2]	No, unless liquid which is managed as liquid industrial waste (Section 2.4.10)	No, unless liquid which is managed as liquid industrial waste (Section 2.4.10)
Manifests[3] **or shipping papers**[2]	If liquids, either manifest or alternative records. See Section 2.4.5.a and b.	If liquids, either manifest or alternative records. See Section 2.4.5.a and b.

[1] Once the LQH status is reached, the business must keep that designation through the end of that calendar year.

[2] Some universal waste may be regulated as USDOT hazardous material if it meets the criteria specified in 49 CFR 173.2. For example, shipments of more than one pound of mercury per package, and many pesticides, are regulated USDOT hazardous materials. The amount of mercury varies in the different devices. This material must be packaged, labeled, marked, placarded, and transported with the proper shipping papers according to USDOT requirements. Contact the Michigan State Police Motor Carrier Division at (517) 336.6580 or the USDOT at (517) 377-1866 or visit their web site at **hazmat.dot.gov** for information about their requirements. Also see Section 4.4 for further discussion of these requirements.

[3] Liquid universal wastes would be shipped as Part 121 liquid industrial waste, not as hazardous waste

2.4.1.d Exclusions and Exemptions

Some waste streams may meet applicable exclusion and exemption criteria and not be fully regulated as a hazardous waste. These exclusions and exemptions are too numerous to include in their entirety in this publication. The following EPA resources on the Internet provide more information about exclusions and exemptions: **"RCRA Orientation Manual"** at **www.epa.gov/epaoswer/general/orientat** and the **"RCRA, Superfund, & EPCRA Hotline Training Modules"** at **www.epa.gov/epaoswer/hotline/modules.htm**. A few common ones are summarized below. Specific waste management requirements are included in Section 2.4.9. Discuss exclusion or exemption questions with your WHMD district office.

RECYCLING

Recyclers are listed in the Recycled Materials Market Directory. Some hazardous waste that is recycled in specific situations is excluded from being regulated as a hazardous waste. However, if it is a liquid it may still be regulated as liquid industrial waste if not exempted under Part 121 of Act 451. For example, gas from an abandoned storage tank or gas/water mixtures that is shipped off site to be burned as a fuel at a cement kiln is exempt from being a hazardous waste, but it would have to be shipped and manifested as a liquid industrial waste. See Section 2.4.3 for other examples of recycled wastes. Also see R 299.9206 and discuss specific recycling requirements with your WHMD district office.

Materials that are directly used or reused are not regulated as hazardous waste when they are:

- Used as an ingredient to make a product, without first being reclaimed which includes filtering or any other processing before use.
- Used as an effective substitute for a commercial chemical product.
- Returned to the original process from which it was generated, without first being reclaimed. However, if the material is reclaimed prior to reuse or is used to produce products that are applied to or placed on the ground or burned for energy recovery, the material and the recycling process are fully regulated.

There are speculative accumulation limits for materials being collected for recycling. Speculative accumulation under the hazardous waste regulations does not include collected materials when at least 75% of the material (either by volume or weight) is recycled, or transferred to another site for recycling, within the calendar year beginning January 1. See R 299.9107(z) for definition of speculative accumulation.

EMPTY CONTAINERS

Empty containers, liners, and residue from "empty containers" are not subject to the hazardous waste requirements if the following conditions are met:

1. The containers or the inner lining that held non-acute hazardous waste have had as much material removed as possible (by practices commonly used to remove that material such as pouring, pumping, and aspirating), AND the amount of hazardous waste residue is any of the following:
   - One inch or less; OR
   - No more than three percent by weight of the total capacity for containers 110 gallons or less in size; OR

- No more than 0.3 percent by weight of the total capacity for containers over 110 gallons.

2. The containers that held acutely or severely toxic hazardous waste (e.g., waste identified on the “P” or “S” lists and some “F” wastes) have been triple-rinsed using a material capable of removing the product or by another proven cleaning method, or the inner lining that prevented contact of the chemical with the container has been removed from the container.

3. Compressed gas cylinders have been emptied to the point where the pressure in the container approaches atmospheric pressure.

WASTEWATER DISCHARGE

Wastewater that contains hazardous waste and is discharged through sanitary sewers to publicly owned treatment plants (POTW) is exempt from the hazardous waste regulations at the point of discharge into the sewer system if the POTW approves the discharge (see Section 3.2.1). However, any hazardous waste generation, treatment, or storage prior to that discharge is subject to the hazardous waste regulations. This exemption does not apply to hazardous waste that is transported by truck or rail to a POTW.

An exemption from the mixture rule exists if very small amounts, or de minimis amounts, of listed hazardous waste are discharged to a facility’s wastewater treatment plant with large volumes of nonhazardous wastewater. Discuss this exemption with your WHMD district office (see Appendix C for phone numbers).

LABORATORY SAMPLES

A waste sample that is sent to a laboratory to determine if it is a hazardous waste is exempt from most of the hazardous waste regulations, if it meets certain conditions. Send the smallest amount needed for the test (typically this is less than one gallon) to the laboratory, and the laboratory may return any remaining sample to the generator. If the waste is determined to be a hazardous waste this exemption no longer applies to the sample after it is no longer needed for waste characterization purposes. See Section 2.4.2.b for shipping record requirements.

2.4.2 Determining If You Generate Hazardous Waste

Businesses must determine if the waste they generate is hazardous or non hazardous. If the materials used, or the process generating the waste changes, or there are other impacts from business operations that may change the waste (e.g. cross contamination from aerosol overspray), it will be necessary to re-evaluate the waste determination. The regulations do not require a specific timeframe like annually to re-evaluate the waste. You may want to check if the disposal company has a retesting schedule.

Keep any records obtained during waste determinations (i.e., test analysis results, material safety data sheet (MSDS) (see Appendix E), or other documentation such as product information from a supplier or manufacturer) at least three years from the time the waste stream was last sent for treatment, storage, or disposal. If you treat waste on-site, there are additional requirements to prepare and keep documentation of the waste analysis plan under the land disposal restriction regulations 40 CFR 268.7(a)(5). (See Section 2.4.5.c)

2.4.2.a Who can do waste determinations for a business?

A business may either:

- Hire a consultant or use a disposal company's waste characterization services. Be aware the waste generator is still ultimately responsible for meeting the waste regulations.

- Characterize the waste themselves by either:
  - ✓ Using knowledge of the material and the process it came from. Information from the material safety data sheets (MSDS), supplier and manufacturer literature, or other documentation may be useful when you have unused product needing disposal. A MSDS often provides information about the flashpoint, pH, or if a discarded product is a hazardous waste. A MSDS is not completely reliable for determining if a used material is hazardous waste because it does not include information about contaminants that might be in that waste. The MSDS can be obtained from the suppliers or manufacturers of the products you are using. Some MSDS are also available on several Internet sites like **www.hazard.com**.

    A waste stream may be presumed to contain certain constituents above regulatory thresholds for compliance purposes, but disposal facilities may still require testing before accepting a waste stream. Applying your knowledge is more useful when declaring something is a hazardous waste than when saying a waste is NOT hazardous.
  - ✓ Having a representative sample of the waste tested.

2.4.2.b What are testing requirements?

It is recommended a business or consultant contact the disposal company before testing. They might require specific tests or only accept data from specific laboratories. Ask the disposal company for a list of these tests, the purpose of the tests, approved testing methods, and acceptable laboratories. This step will prevent you from spending money on laboratory tests that are not necessary or do not meet the disposal company's requirements. The waste rules identify which laboratory methods can be used. If the waste is from cleanup activities, see the methods in the **Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria** but before testing discuss your cleanup situation with MDEQ staff.

It is wise to obtain price estimates from two or more laboratories. In some cases, the tests will save you money by showing that you do not have hazardous waste. When hiring testing services, use a reputable firm and obtain a written contract. The contract should clearly identify which specific services the company will provide. For example, instead of vague language about sampling waste, identify:

- ✓ Who is responsible for collecting samples?
- ✓ Who will arrange to have it analyzed?
- ✓ Who will arrange to have an expert look at the analysis results?
- ✓ Who will determine if the waste is hazardous and at which regulatory limit?

Waste samples being sent to laboratories are exempt from most of the hazardous waste regulations if it meets certain conditions. Submit the smallest sample amount as possible for testing (typically less than one gallon), and the laboratory may return any remaining waste

sample to the generator. The exemption no longer applies when the sample is determined to be hazardous waste and is no longer needed for waste characterization purposes.

Contact the laboratory about its procedures for accepting samples. When shipping the sample, you must meet U.S. Postal Service or US Department of Transportation (US DOT) labeling and shipping requirements. Transportation questions can be directed to Michigan State Police, Motor Carrier Division or the USDOT at (800) 467-4922. If these agencies' regulations do not apply to the sample, it must be packed so it does not leak, spill, or vaporize. Waste samples being shipped to a laboratory are not required to be manifested, but the following information must accompany the shipment:

- ✓ Sample collector's name, mailing address, and telephone number.
- ✓ Laboratory's name, mailing address, and telephone number.
- ✓ Date of shipment.
- ✓ Quantity of the sample.
- ✓ Description of the sample.

2.4.2.c What are common laboratory tests?

The **paint filter test** is a method used to determine the presence of free liquids in a representative sample of waste. A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-minute test period, it contains free liquids. If these wastes are not regulated under the hazardous waste regulations, they are regulated under Part 121 of Act 451 as a liquid industrial waste.

A **Toxicity Characteristic Leaching Procedure (TCLP)** is used to determine if a waste has toxicity characteristics in amounts that meet or exceed regulatory limits causing it to be regulated as hazardous waste. The TCLP test method 1311 can be found in the EPA publication **"SW-846"** The TCLP was designed to predict whether a waste is likely to leach chemicals into groundwater. It simulates the conditions a waste might encounter in a typical municipal solid waste landfill. Be aware that it is not necessary to identify every chemical component of the waste in order to meet the hazardous waste regulations and ensure adequate treatment or disposal. It may not be necessary to run a TCLP for every constituent included on the "D" list if you are familiar with your process. For example, you may only need to have a TCLP done for metals and volatiles if you know that the other constituents are not present in the waste. If you are unsure of the types and concentrations of hazardous contaminants present in the waste, a cost-effective option to running a TCLP test is to first run a total waste analysis to demonstrate if a waste exhibits toxicity characteristics. If the waste is 100% solids, divide the total constituent concentration by 20 and then compare the resulting theoretical concentration to the regulatory limit in Table 2.3. This is sometimes called the 20 times rule. If no theoretical concentration equals or exceeds the regulatory limit, the solid cannot exhibit the toxicity characteristic and the TCLP does not need to be run. If the waste is a liquid or contains both liquids and solids, go to **www.epa.gov/rcraonline** and search for "Total Waste Analysis" for more information and formula to convert totals results.

In other situations, you may only need to know if a liquid waste is ignitable and can request a flashpoint test; or to find out if it is corrosive, a pH test can be done. Special tests might be required if you have drums or containers of mixed or unidentified old waste. You may be able to

minimize laboratory testing costs by providing information about your waste streams and operations that were previously collected during your waste survey.

Although it is not commonly done, you may be able to conduct some tests on your own to determine if you have hazardous waste. For example, used oil can be tested on-site by using a commercial test kit to determine if it contains total halogens greater than 1,000 ppm requiring it to be handled as a hazardous waste. Discuss these testing options with your permitted and registered waste transporter, treatment, storage, and disposal facility (TSDF), or recycling company to see if they will accept these test results.

2.4.2.d Steps when doing waste determinations

A. Conduct a waste survey as described in Section 2.1 to identify all your waste streams. Hazardous waste may be generated in many areas of your company. Following are some commonly overlooked wastes. Reasons why it may be a hazardous waste are in parenthesis.
    - Spent fluorescent tubes and other lighting fixtures (toxic for mercury).
    - Disposable rags containing free liquids with a flashpoint of less than 140 degrees Fahrenheit or used with a listed solvent (ignitability, spontaneous combustion, used with “F” listed solvents).
    - Spent activated carbon media, included in some air filters and other equipment (contains “F” listed solvents).
    - Used solvents with low flashpoint (toxic, ignitability).
    - Used solvents with high flashpoints (toxic and ignitable contaminants).
    - Drain or sump sludge, including loading/unloading area trenches (contains toxic metals or “F” solvents, ignitability due to fuel leaks from trucks).
    - Painting materials and waste including paint thinners, enamel reducers, epoxies, primers, enamels, solvent-based paints, and paint booth filters (contains “F” solvents, metals, ignitability).
    - Aerosol cans that are not empty (contains “U” or “P” chemicals, ignitability).
    - Solvent-based adhesives (ignitability).
    - Batteries - lead acid and dry cell (toxic for lead and mercury, corrosive).
    - Used water-based or synthetic lubricating fluids containing high concentrations of heavy metals (toxic metals of concern include lead, chromium, cadmium, and barium).
    - Listed wastes mixed with another nonhazardous waste.
    - Office computer equipment (may contain lead in the cathode ray tubes, mercury switches, batteries).
    - Discarded, unused chemical products from inventory reduction activities (any of the commercial chemical products on the “P” and “U” lists in the state or federal regulations).
    - Medical kits containing mercury thermometers or antiseptics containing mercury (toxic).

B. Identify if the material can be used “as is” without any processing, filtering, etc. and thus can be used as a product and not be disposed of as a waste. Consider using material

exchanges, associations, or other business connections to find another company that can use the product.

C. Identify if the material is a characteristic and/or listed hazardous waste as identified in Part 2 (Identification and Listing of Hazardous Waste) of the hazardous waste rules and Part 111 of Act 451. Be aware Michigan regulations identify more hazardous wastes than EPA under the federal Resource Conservation and Recovery Act (RCRA) and rules.

   Consider these five questions when doing a hazardous waste characterization:

   1. Is the unwanted material a waste (solid, semisolid, liquid, or gas)?
   2. Is the material specifically excluded or exempted from the hazardous waste regulations? See the complete descriptions in the Part 111 of Act 451 rules. See Section 2.4.3 for some common examples.
   3. Is the waste a "listed" hazardous waste? To be considered listed waste, either the chemical or the process to generate the waste is specifically included in the rules. Listed wastes include “F,” “K,” “P,” and “U” in the hazardous waste number. In some instances, if listed hazardous waste is combined with other non-hazardous wastes, those wastes may be regulated as listed hazardous waste. See Chapter III of the EPA publication “**RCRA Orientation Manual**” for an overview of the “mixture and derived from” and the “contained in” rules along with an overview of hazardous waste characterization and exemptions/exclusions. For a printed copy, call (800) 424-9346 to order document # EPA 530-R-02-016.
   4. Does the waste exhibit a characteristic of hazardous waste? The waste could be flammable, corrosive, reactive, or it meets or exceeds the toxicity levels identified for 40 materials identified in administrative rule R 299.9217 and materials listed in R 299.9219. Characteristic wastes include “D” and “S” in the hazardous waste number. Use all waste codes that apply.
   5. Is the waste subject to the Land Disposal Restrictions (LDR)? (See Section 2.4.5.c)

D. If the waste is not hazardous waste, does it contain free liquids which would make it a Part 121 liquid industrial waste in Michigan? Does it meet any exclusion listed in Part 121 of Act 451? If you are unsure if liquids are present, it may be necessary to have a paint filter test done. Please note used oil has requirements under both Parts 121 and 111. Process wastewater discharged to a septic system is normally regulated as Part 121 waste and not septage waste regulated under Part 117 (Septage Waste Servicers) of Act 451. The septic system will need a groundwater discharge permit or exemption from the DEQ Water Bureau (see Chapter 3).

E. If it is not hazardous waste or a liquid industrial waste, is it a solid waste regulated under Part 115 of Act 451, a scrap tire regulated under Part 169 of Act 451, or a NESHAP regulated asbestos waste? Does it meet any exclusion included in these regulations? (See Section 2.2.)

F. In some instances, it may be necessary to determine if the material is a regulated medical waste (see Section 2.5) or radioactive material waste (see Section 2.4.9.n) or regulated under the federal Toxic Substances Control Act (TSCA) such as PCB waste (see Section 4.5).

2.4.2.e Additional waste determination resources

- EPA publication “Guide for Industrial Waste Management” Chapter 2 “Waste Characterization”
- RCRA Training Modules including “Hazardous Waste Identification”, “Exclusions”, and “Definition of Solid Waste and Hazardous Waste Recycling”
- Federal List of Lists can help identify federal RCRA listed and toxic hazardous wastes. It does not include all characteristic wastes nor the additional listed Michigan hazardous wastes.
- Use Internet tools such as the EPA Envirofacts Master Chemical Integrator and MSDS information to search for chemical and hazardous waste information. MSDS can be obtained from the product supplier, manufacturer, or Internet.
- Purchase characterization publications from private companies or associations. For example, the American Society for Testing and Materials has their ASTM Manual 42 RCRA Waste Management: Planning, Implementation, and Assessment of Sampling Activities. This is not a DEQ endorsement for this manual.
- Discuss waste determination requirements with the WHMD district office.

Not properly characterizing waste and keeping documentation are common waste violations.

2.4.3 Hazardous Waste Generator Status & Requirements Summary

Your facility’s hazardous waste status (see Table 2.5) is based on the total quantity of the hazardous waste being generated in a calendar month and accumulated at your site over a specific time period. Most fruit and vegetable processors are either a Conditionally Exempt Small Quantity Generator or Small Quantity Generator.

You need to determine this status before you apply for a site identification number (see Section 2.4.4). It determines which regulations you must follow. Facilities are subject to an annual user fee based on the largest hazardous waste generator status they were notified as during the previous year and also have hazardous waste manifest processing fees. The requirements and fees increase as the business generates more hazardous waste. There are storage time and accumulation volume limits. If the generator does not exceed these limits, a hazardous waste storage operating license is not required.

When calculating your hazardous waste generator status, use the results from your waste survey (see Section 2.1) and waste determinations (see Section 2.4.2) that identified all of the hazardous waste streams your business generates. You DO NOT NEED to count the following hazardous wastes when calculating your generator status:

- Waste that is not a regulated hazardous waste.
- Hazardous waste that is being managed as a universal waste. Includes electric lamps (e.g. fluorescent and other light bulbs), batteries, devices containing mercury, consumer

electronics including computers, certain pesticides, and pharmaceuticals. (see Sections 2.4.1.c, 2.4.9.d, and 2.4.9.e)

- Reusable shop towels or other textiles that do not contain free liquid and are cleaned for reuse (see Section 2.4.9.h)
- Scrap metal being recycled (see Section 2.2.1) Be aware that scrap metal from sealed radioactive sources, typically installed in measurement gauges used in manufacturing operations may also contain radioactive materials.
- Solvents being recycled (see Section 2.4.9.i)
- Used oil and filters being recycled (see Section 2.4.9.a and 2.4.9.b)
- Lead acid batteries being recycled (see Section 2.4.9.c)
- The remaining residue in “empty containers” (see Section 2.4.1.d.2)
- Spent chlorofluorocarbon refrigerants being reclaimed (see Section 2.4.9.n)
- See R 299.9205(5) for additional wastes that are recycled, reclaimed or treated onsite which are not counted.

If the company is on the border of a generator category, it is recommended a simple written log be kept by the waste container that shows when and how much hazardous waste was generated per month. This will provide documentation to support the status level they notified at. For example:

Laboratory Used Reagents

Date waste added:	How much added:	By:	Running total for month
1/3/07	1 gal	George G.	1 gallon
1/15/07	*4 gal*	*Pat M.*	*5 gallons*
2/9/07	2 gal	Sammy Jo	2 gallons

Notice new monthly total

A company may lower their hazardous waste generator status and regulations they must meet if they implement waste minimization and other pollution prevention practices and reduce the amount of waste generated (see Section 2.1). In addition, when they sign a manifest (see Section 2.4.5), they are certifying they have tried to reduce the amount and toxicity of waste generated.

TABLE 2.5
SUMMARY OF THE HAZARDOUS WASTE GENERATOR CATEGORIES AND REQUIREMENTS

	Conditionally Exempt Small Quantity Generator (CESQG)[1]	Small Quantity Generator (SQG)[1]	Large Quantity Generator (LQG)
Amount of acute or severely toxic hazardous waste generated or accumulated at any time[2]	1 kilogram (2.2 pounds) or less	1 kilogram (2.2 pounds) or less	More than 1 kilogram (2.2 pounds)
Amount of acute spill residue or contaminated soil generated or accumulated at any time[2]	100 kilograms (220 pounds) or less	100 kilograms (220 pounds) or less	More than 100 kilograms (220 pounds)
Amount of non acute hazardous waste generated in 1 calendar month	Less than 100 kilograms (220 pounds)	At least 100 kilograms (220 pounds) but less than 1,000 kilograms (2,200 pounds)	1,000 kilograms (2,200 pounds) or more
Approximate volume of non acute hazardous waste[3]	Less than half of a 55gallon drum, or 25 gallons	One-half to five drums, or 25 to 250 gallons	Five full drums, or 200-250 gallons
Maximum amount of non acute hazardous waste that can be accumulated on-site	1,000 kilograms (2,200 pounds)	6,000 kilograms (13,200 pounds)	No maximum amount
Maximum time period before waste must be shipped	No time limit unless amount exceeds 2,200 pounds	180 days, unless shipping over 200 miles, then 270 days	90 days
Storage requirements Weekly inspections	Recommended to meet SQG requirements, may have be subject to other regulations depending on waste (Section 2.4.7)	Yes Recommended written inspection logs (Section 2.4.7)	Yes Written inspection logs (Section 2.4.7)
Labeling requirements	Yes under MIOSHA and used oil rule (Sections 2.4.8, 2.4.9, & 13)	Yes (Sections 2.4.8 & 2.4.9)	Yes (Sections 2.4.8 and 2.4.9)
Site identification number	Yes if liquid being shipped by registered transporter (Section 2.4.4)	Yes (Section 2.4.4)	Yes (Section 2.4.4)
Biennial report	No	No	Yes (Section 2.4.6)
Annual report	If subject to Annual Wastewater Report (Section 3.4)	If subject to Annual Wastewater Report (Section 3.4)	If subject to Annual Wastewater Report (Section 3.4)

TABLE 2.5
SUMMARY OF THE HAZARDOUS WASTE GENERATOR CATEGORIES AND REQUIREMENTS

	Conditionally Exempt Small Quantity Generator (CESQG)[1]	Small Quantity Generator (SQG)[1]	Large Quantity Generator (LQG)
Personnel training[4]	Recommended but not required under waste regulations (Section 2.4.12); USDOT training when shipping hazardous waste; (Sections 4.4.10 & 6.2.7); MIOSHA training	Basic training required (Section 2.4.12) USDOT training required when shipping hazardous waste (Chapters 4 & 6); MIOSHA training	Required. Need written documentation (Section 2.4.12) USDOT training required when shipping hazardous waste (Chapters 4 & 6); MIOSHA training
Contingency plan[4]	Recommended but not required under waste regulations; USDOT security plan if shipping excess of 1000 pounds hazardous waste (Section 6.2.7)	Basic plan Post required information by telephones Section 6.2.1; USDOT security plan if shipping excess of 1000 pounds hazardous waste (Section 6.2.7)	Written plan required Section 6.2.1; USDOT security plan if shipping excess of 1000 pounds hazardous waste (Section 6.2.7)
Emergency procedures [4]	Recommended but not required under waste regulations	Yes (Section 6.2.1).	Yes (Section 6.2.1)
Manifests	Yes if liquids or use alternative records identified in Section 2.4.5	Yes, or meet tolling arrangement recordkeeping (Section 2.4.5)	Yes (Section 2.4.5)
Permitted and Registered Transporter	Self haul option (see Section 2.4.5.a) or permitted and registered transporter if liquid (Section 2.4.10)	Permitted and registered transporter (Section 2.4.10)	Permitted and registered transporter (Section 2.4.10)
US DOT Transport requirements	Yes, when required by US DOT (Sections 2.4.8 & 4)	Yes (Sections 2.4.8 & 4)	Yes (Sections 2.4.8 & 4)
Waste Minimization Program	Recommended	Certify on manifest that company made good faith effort to minimize waste generation	Written program. Certify on manifest that company has program to reduce the volume and toxicity of waste
On-site Treatment Waste Analysis Plan	Recommended	Required if treating hazardous waste on-site per LDR regulation (Section 2.4.5.c)	Required if treating hazardous waste on-site per LDR regulation (Section 2.4.5.c)
Off-site Treatment, Storage or Disposal of Waste	State permitted or hazardous waste permitted/interim status facility	Hazardous waste permitted/interim status facility	Hazardous waste permitted/interim status facility

[1] If you are registered at one generator status but have a monthly hazardous waste shipment larger than the quantities allowed at that status, then you will need to update your generator status by renotifying and meet the additional requirements (see Section 2.4.4).

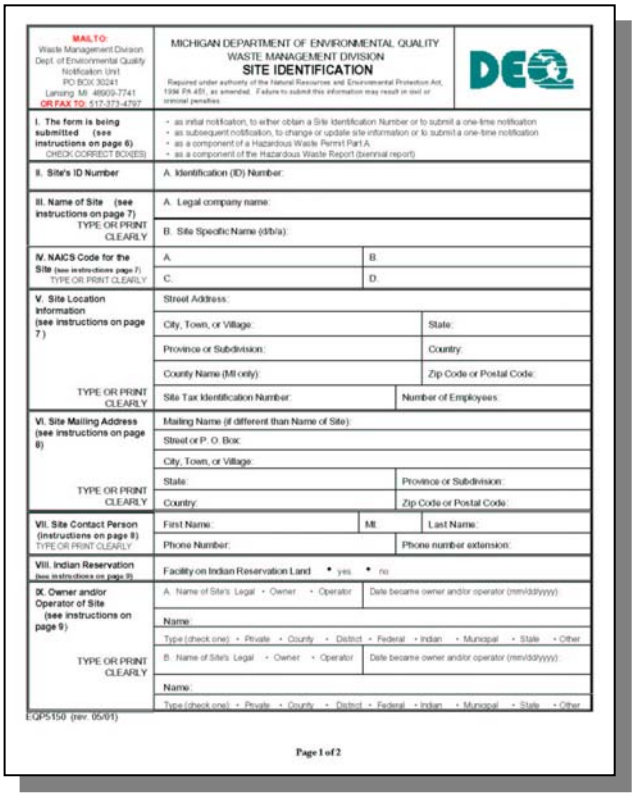
TABLE 2.5
SUMMARY OF THE HAZARDOUS WASTE GENERATOR CATEGORIES AND REQUIREMENTS

	Conditionally Exempt Small Quantity Generator (CESQG)[1]	Small Quantity Generator (SQG)[1]	Large Quantity Generator (LQG)
[2] Acute hazardous wastes are those in the "P" list and certain wastes in other lists indicated with an (H); severely toxic wastes are those with an "S" in their number.			
[3] The liquid volume is only given as an estimate and is based on the waste having approximately the same weight and volume equal to water. Your liquid hazardous waste might have a different volume based on its weight. The regulations state amounts by weight.			
[4] May also be subject to other emergency planning and training regulations in Chapter 6			

2.4.4 Identification Numbers

Fruit and vegetable producers are required to have a unique site identification number assigned to each site that manages regulated waste. This number is used when they ship wastes off-site. Some people refer to this as an "EPA number." This numbering system applies to:

- **Hazardous waste and liquid industrial waste** generators, transporters, treatment, storage, and disposal or destination facilities; hazardous waste fuel burners and marketers.
- **Universal waste** large quantity handlers and destination facilities.
- **Used oil** generators, collection and aggregation sites, transporters, processors or re-refiners, burners, and marketers.



MAIL TO:
Waste Management Division
Dept. of Environmental Quality
Notification Unit
PO BOX 30241
Lansing, MI 48909-7741
OR FAX TO: 517-373-4797

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE MANAGEMENT DIVISION
SITE IDENTIFICATION

Required under authority of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Failure to submit this information may result in civil or criminal penalties.

DEQ

I. The form is being submitted (see instructions on page 6) (CHECK CORRECT BOX(ES))
- as initial notification, to either obtain a Site Identification Number or to submit a one-time notification
- as subsequent notification, to change or update site information or to submit a one-time notification
- as a component of a Hazardous Waste Permit Part A
- as a component of the Hazardous Waste Report (biennial report)

II. Site's ID Number
A. Identification (ID) Number:

III. Name of Site (see instructions on page 7) TYPE OR PRINT CLEARLY
A. Legal company name:
B. Site Specific Name (d/b/a):

IV. NAICS Code for the Site (see instructions page 7) TYPE OR PRINT CLEARLY
A. B.
C. D.

V. Site Location information (see instructions on page 7) TYPE OR PRINT CLEARLY
Street Address:
City, Town, or Village: State:
Province or Subdivision: Country:
County Name (MI only): Zip Code or Postal Code:
Site Tax Identification Number: Number of Employees:

VI. Site Mailing Address (see instructions on page 8) TYPE OR PRINT CLEARLY
Mailing Name (if different than Name of Site):
Street or P. O. Box:
City, Town, or Village:
State: Province or Subdivision:
Country: Zip Code or Postal Code:

VII. Site Contact Person (instructions on page 8) TYPE OR PRINT CLEARLY
First Name: MI: Last Name:
Phone Number: Phone number extension:

VIII. Indian Reservation (see instructions on page 9)
Facility on Indian Reservation Land * yes * no

IX. Owner and/or Operator of Site (see instructions on page 9) TYPE OR PRINT CLEARLY
A. Name of Site's: Legal • Owner • Operator — Date became owner and/or operator (mm/dd/yyyy):
Name:
Type (check one): • Private • County • District • Federal • Indian • Municipal • State • Other
B. Name of Site's: Legal • Owner • Operator — Date became owner and/or operator (mm/dd/yyyy):
Name:
Type (check one): • Private • County • District • Federal • Indian • Municipal • State • Other

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If it isn't known for sure if a business has a site identification number, or what activities are on file with WHMD, search the Waste Data System (WDS) at **www.deq.state.mi.us/wdspi**. If you don't know the site identification number, it is recommended to first search on the street number and zip code in the appropriate address fields. By searching on an address, you avoid getting no matches when a business may be in the system under one name, but commonly known as something else. If you know the site identification number, type that in the WDS Quick Search field.

> If you need help or don't have Internet access, call your WHMD district office or (800) 662-9278 fo assistance.

When a site identification number needs to be obtained, there is an application fee. Companies are encouraged to file electronically through MiTAPS with the option to pay the fee with a credit card so they can obtain a number in a shorter amount of time. They may also print off and mail in the **"Site**

Identification Form" (EQP5150) and pay with a check or money order. The MiTAPS link and the form and instructions are available at **www.michigan.gov/deqwaste** (under the Announcements heading, select "Michigan Site Identification Form and Directions EQP5150"). For Michigan facilities, this form replaces the EPA notification forms.

Make sure to avoid the mistake of not filling out these commonly missed fields, or providing incomplete information when filling out the form:

Box IV: Go to www.naics.com to confirm your activity NAICS code. Common ones include:
311411 Frozen Fruit, Juice, and Vegetable Manufacturing
311423 Dried and Dehydrated Food Manufacturing
311421 Fruit and Vegetable Canning
311422 Specialty Canning

Box V: Federal Identification Number
Approx number of employees

Box IX: Need both owner/operator listed along with the date (month, day, and year) they began at site

Box X: Select all applicable boxes. A used oil generator would select box E liquid industrial waste generator. Only select the applicable universal boxes if you manage a total amount of 11,000 or more pounds of universal wastes (Large Quantity Handler).

Box XI: Failing to sign and date the form if submitting the paper EQP5150.

Companies are currently issued new numbers beginning with the prefix MIK# # # # # # # # #. Existing companies may have numbers issued previously with a prefix of MIR, MID, MIT, MIE, or MI0 or have a Michigan identification number (which has a prefix MIG, MIH or MIP). Companies are no longer issued Michigan waste identification numbers by the WHMD.

A facility may need to obtain a new site identification number and update notification information previously submitted if there are changes regarding their regulated waste activities at the site. It is necessary to check all the boxes that apply to the regulated waste. Some examples when a notification needs to be submitted:

- A company that had previously only shipped used oil and had a Michigan identification number, but now also generates hazardous waste in amounts making them a SQG or LQG. Check the appropriate box in A for hazardous waste generator and check box in Section X. E. for liquid industrial waste generator (for the used oil).

- A company moves to a new location and will be generating or managing regulated waste at the new site. Check all applicable boxes on the form. See the next bullet if there was an identification number issued for the site where they used to operate.

- A company no longer generates waste that had previously required an identification number at a location but the company is still in operation at that site, or it has gone out of business. Check the box in Section X. F. that states it is no longer in business or not generating waste at that location.

- A company wants to haul used oil in volumes of 55 gallons or less from their other locations they own or operate to a central location. Check the box in Section X.C. for collection center

or aggregation point and check boxes in Section X.E. for liquid industrial waste generator and transporting own waste.

- A company handles total accumulated amount of 11,000 pounds or more of all universal wastes. Check appropriate boxes in Section X.D.

- A facility accepts liquid industrial waste from other sites. Check the box in Section X. E. for liquid industrial waste designated facility and any other regulated activities.

A facility may have an identification number issued under a different program, such as a medical waste identification number issued by the WHMD Medical Waste Program or a federal identification number for PCBs assigned by the EPA TSCA Program. Those numbers may be used on a manifest but only when shipping the waste regulated under that specified program. Shipments of regulated liquid industrial waste or hazardous waste require the use of the applicable identification number issued by the DEQ, WHMD or previously issued by EPA on the manifest.

Do not use outdated versions of the form **EQP5150** (the current version at time of this publication's printing was 7/05). If you are uncertain about whether you have the correct form or if you need a different waste identification number, or have questions about hazardous waste and liquid industrial waste management, contact your WHMD district office or call (800) 662-9278 for a referral. If you have questions about an application for a site identification number, call the WHMD at (517) 373-2730 and ask for a notification program coordinator. When submitting the form, make sure your form is filled out completely and accurately.

2.4.5 Manifests and Shipping Records

Manifest forms are designed to track hazardous and liquid industrial waste shipments of waste from their point of generation to their final destination. Specific requirements depend on the type of waste shipped. The following summarizes the waste manifest and shipping records requirements under the waste regulations. See Section 4.4 for additional shipping requirements overseen by the Michigan State Police and US DOT.

2.4.5.a Hazardous and Liquid Industrial Waste Manifests

The generator of the waste, the transporter, and the TSDF that receives the waste must each sign and keep a copy of the manifest as they handle the waste. For the majority of generators, manifesting will be required. However, there are four circumstances when individual manifests are not required:

1. A waste manifest is not required for companies transporting their own liquid industrial waste including used oil, and CESQG's transporting their own liquid hazardous waste, in amounts of 55 gallons or less to a designated facility, if the following conditions are met:

    - It is not necessary to notify the WHMD of this activity if this is the only waste the company generates because a site identification number is not required to be used. However, if the company has other regulated waste activities requiring the submittal of the **EQP5150** form, check the box for those activities, along with being a liquid industrial waste generator, and for transporting own liquid industrial waste (see Section 2.4.4). These companies are not

required to be a permitted and registered transporter when only hauling their own liquid industrial waste.

- Transport the waste with a record of where the waste is generated from, what is the waste, the quantity of the waste, and where the waste is being transported with the waste shipment.
- Obtain a signature from the designated facility acknowledging receipt of the waste and provide a copy of the record to that facility.
- Keep a copy of shipment records for at least three years after the date of shipment.
- Manage the waste according to the liquid industrial waste regulations (see Section 2.3). The designated facility must have notified the WHMD of their activities and if they are accepting used oil, the notification would include they are a used oil aggregation point or collection center.
- Have required insurance.
  - The generator should check if their insurance company will cover accidents involving the transportation of this waste. The DEQ will not enforce the requirement for insurance when a generator is transporting the above waste to a properly notified and operated destination facility, including a local household hazardous waste collection program that accepts business waste, providing the generator is in compliance with the federal transportation requirements (see op memo 121-2).

NOTE: If a company is transporting shipments more than 55 gallons of that company's own generated liquid industrial waste, then the generator must meet the following requirements:

- Notify the WHMD of regulated waste activities on the form **EQP5150** (see Section 2.4.4). A generator hauling their own liquid industrial waste is not required to be a permitted and registered transporter when only hauling their own liquid industrial waste.
- Manage the waste according to the liquid industrial waste regulations (see Section 2.3).
- Use waste manifests and take waste to designated facilities that have notified the WHMD of their activities and are meeting Part 121 designated facility requirements.
- Have insurance coverage as required by the Hazardous Materials Transportation Act and manifest the waste shipment.
  - If using vehicles under 10,000 pounds gross vehicle weight, have fleet coverage of at least $300,000.
  - If using vehicles equal to or greater than 10,000 pounds gross vehicle weight, have fleet coverage of at least $750,000.
  - Get a copy of the form **"MCS-90"** (endorsement for motor carrier policies of insurance for public liability under Section 29 or 30 of the Motor Carrier Act of 1980) from your insurance company and submit it to the DEQ WHMD, Attn: Transportation Program Technician, Southeast Michigan District office, 27700 Donald Ct, Warren MI 48092-2793.

2. When consolidated manifests are used by permitted and registered transporter for liquid industrial waste shipments, a generator does not need to have to use individual manifests.

The transporter must provide a receipt for each individual pickup to the actual generator of the waste. The receipt must include all the following:

- Transporter's company name
- Driver's signature
- Date of pickup
- Type and quantity of waste removed
- Consolidated manifest number
- Designated facility

For more information about consolidated manifests see Operational Memo 121-3 at **www.deq.state.mi.us/documents/deq-wmd-opmemo-121-3.pdf**.

3. Small Quantity Generators with a "tolling arrangement" are exempted from manifesting hazardous waste if that waste is being transported off-site and reclaimed under a contractual agreement and if certain procedures are followed. However if it is a liquid, it still must be manifested as a liquid industrial waste.
   - The contract must specify the type of waste and the frequency of shipments.
   - The vehicle used to transport the waste to the recycling facility and deliver the regenerated material back to the generator is owned and operated by the reclaimer. The reclaimer would need to be a permitted and registered liquid industrial waste transporter.
   - The generator maintains a copy of the reclamation agreement for at least three years after the contract expires.
   - The generator must also meet the land disposal restriction requirements per 40 CFR 268.7(a)(10) (see Section 2.4.5.c). Keep a copy of the notification and certification onsite with the tolling agreement for at least three years after termination of the agreement.
4. A Conditionally Exempt Small Quantity Generator is not required to manifest solid hazardous waste that is being transported to an authorized disposal facility where the waste has been approved.

Discuss questions about manifests with your WHMD district office (see Appendix C for phone numbers).

All other hazardous and liquid industrial waste shipments after September 5, 2006 need to have a "Uniform Hazardous Waste Manifest" EPA Form 8700-22 accompany the load. Most transporters or disposal companies provide waste manifests and will help you complete them but if you need to obtain your own, contact an EPA approved printer. The link to approved printers, instructions on completing manifests, which includes the liquid industrial waste codes, manifest log for tracking manifests, and other information can be found on the web at www.michigan.gov/deqwaste (select Uniform Manifest Information). Discuss with the WHMD district office about what you need to do if you intend to ship your hazardous waste by rail or by water. There are different manifest requirements that must be followed when these transportation methods are used.

If you have any questions, contact the Manifest Unit or your WHMD district office. If someone else prepares the manifest for you, check it over carefully because you must sign a statement on the manifest that all of the listed information is correct.

All generators are required to submit the appropriate manifest copy to the WHMD within 10 days after the end of the month in which the waste was shipped. The TSDF operator must send a copy to the WHMD after they receive the waste, and they must send you a signed copy to assure that your shipment of waste arrived. Keep this copy signed by the transporter and TSDF on file for at least three years.

There are time limits in which you should receive the manifest copy from the TSDF. If you do not get your copy within the time frames given, you need to submit the following information to the appropriate agency:

If you shipped liquid industrial waste or are a Conditionally Exempt Small Quantity Generator and have not received a copy of the manifest from the TSDF within 35 days, contact the transporter and TSDF operator to determine what happened with your shipment. If you still have not received the manifest copy within 45 days after the waste was shipped, file an exception report with the WHMD. Include a copy of the manifest and a letter explaining what contacts you have had with the transporter and TSDF and any information you have regarding the shipment.

If you are a Small Quantity Generator, make sure that you received a manifest copy from the TSDF within 60 days after you shipped the hazardous waste. If you have not received it, send a copy of the manifest along with an explanation to the WHMD and EPA Region V stating you have not received confirmation of the delivery from the TSDF.

If you are a Large Quantity Generator, make sure that you have received a copy of the manifest from the TSDF within 35 days after you shipped the hazardous waste. If you have not received it, contact the transporter and TSDF about the shipment. If you still haven't received a copy within 45 days after shipment, file an exception report with both the WHMD and EPA Region V. This report must include a copy of the manifest and a letter signed by you which explains what efforts you have taken to locate the shipment of hazardous waste and any results of those efforts.

Manifests and exception reports are mailed to:

DEQ WASTE AND HAZARDOUS MATERIALS DIVISION
MANIFEST UNIT
PO BOX 30038
LANSING, MI 48909-7538

2.4.5.b Universal Waste

Hazardous waste manifests are not required for shipping universal waste. However, shipments of liquid universal wastes (e.g. pesticides) would be manifested or have shipping records as liquid industrial wastes (see Section 2.4.5.a). If a waste manifest is not used, then shipping papers in accordance with USDOT regulations under 49 CFR 172 would be required if the universal waste being shipped is a USDOT hazardous material under 49 CFR 171.8. See the following sections pertaining to specific waste streams and contact the Michigan State Police, Motor Carrier Division at (517) 336.6580 or USDOT at (800) 467-4922 for more shipping information.

Small Quantity Handlers are not required to keep a record of their universal waste shipments.

Large Quantity Handlers must keep records of universal waste they receive and universal waste shipped off-site. These records must be kept at least three years. The records can be in the form of a log, invoice, manifest, bill of lading, or other shipping document. The following information must be recorded:

- ✓ Name and address where the universal waste came from and/or to where it was shipped.
- ✓ Quantity of each waste type (i.e., batteries, electric lamps, pesticides, etc.) received and/or shipped out.
- ✓ Date when you received the shipment and/or when you sent out the shipment.

2.4.5.c Land Disposal Restrictions

Land ban notifications, also known as land disposal restrictions (LDR), apply to:

- SQG and LQG shipping waste off-site to treatment, storage and disposal facilities (see Section 2.4.10)
- SQG managing wastes under tolling agreements (see Section 2.4.5.a)
- SQG and LQG treating wastes on-site.

The LDR program requires hazardous waste to undergo physical or chemical changes so that there is less threat to the ground water, surface water, and air when the hazardous waste is disposed of in landfills, surface impoundments, injection wells, concrete vaults, underground mines or caves, waste piles, or other land disposal locations. Both listed and characteristic hazardous wastes must meet the LDR treatment standards before being land disposed. Compare the standards that are found in 40 CFR 268.42 with the hazardous waste generated at the facility.

The specific treatment standards are too numerous to include in this guidebook. Go to **www.epa.gov/epaoswer/hazwaste/ldr/ldr-sum.pdf** and **www.epa.gov/epaoswer/hazwaste/ldr/index.htm** for more information.

OFF-SITE SHIPMENTS:

Small Quantity and Large Quantity Generators must send a one-time written notice with the initial shipment of hazardous waste to the TSDF or recycler containing specific language advising the TSDF or recycler whether or not the hazardous waste shipment is prohibited from land disposal. A new notification must be sent when there is a waste or facility change.

Discuss your specific LDR requirements with your TSDF or local WHMD district office. Many TSDFs have preprinted the specific statements on forms that you can use to meet this requirement and will help you properly fill out the information. You are required to keep copies of the land ban notifications and certifications for at least three years after the last shipment of that waste.

Common violations regarding land ban notifications include:

- ✓ Failing to keep a copy.
- ✓ Missing a category or subcategory of waste information.
- ✓ Listing incorrect (outdated) treatment standards or information that is inconsistent with the waste characterization.

ON-SITE TREATMENT:

Discuss on-site waste treatment requirements with your district office (see Appendix C).

Per LDR rule 40 CFR 268.7(a)(5), if a generator is managing and treating LDR prohibited wastes in tanks, containers, or containment buildings regulated under 40 CFR Part 262.34 to meet applicable treatment standards found at Part 268.40, the generator must develop and follow a written waste analysis plan which describes the procedures they will carry out to meet those standards. The plan must be kept on site in the generator's records and the following requirements must be met:

- The waste analysis plan must be based on a detailed chemical and physical analysis of a representative sample of the prohibited waste(s) being treated, and contain all information necessary to treat the waste(s).
- The plan must be kept in the facility's on-site files and made available to inspectors.
- Wastes shipped off-site pursuant to this paragraph must comply with the notification requirements of 40 CFR 268.7(a)(3).
- If the waste determination is based solely on knowledge of the waste, all supporting data used to make this determination must be retained on-site in the generator's files.

2.4.6 Biennial Reports

If you are a Large Quantity Generator at any time during an odd numbered year, or are a TSDF, you are required to submit a biennial report to the WHMD by March 1 of every even-numbered year. For example, if the company was a Large Quantity Generator in May and June 2007, it will need to submit a biennial report by March 1, 2008.

Do NOT use the EPA form because that data is not is not compiled in the format used by the MDEQ.

The DEQ, WHMD will mail a pre-populated reporting packet and instructions to the facility normally by the end of the first week in February as a part of the annual invoice packet. You need to confirm this information is correct for all the hazardous waste generated at your business during the previous odd numbered year, and then add the source and management codes for the hazardous wastes. In addition, if you generated and managed any hazardous waste on-site in a unit that is not exempt you must report the volume of waste, the source code and the management code (e.g., treatment of waste in containers). Contact the Biennial Report Program staff at (517) 335-5316 if you did not receive the forms by mid February of the year they are due.

Keep a copy of the biennial report in your records for at least 3 years from the due date.

The Michigan hazardous waste regulations do not require annual reporting in Michigan for shipments in the United States. If you export hazardous waste out of the country, annual reports are submitted to EPA. If your company is subject to the Annual Wastewater Report and the waste generated at the facility contains critical materials as identified under those regulations, you must meet those annual reporting requirements (see Section 3.4).

2.4.7 Hazardous Waste and Universal Waste Accumulation On-site

There are specific requirements regarding the accumulation of waste, including how long you can accumulate it before shipping and how the containers must be labeled. These requirements are detailed in the following sections.

2.4.7.a Accumulation Time Limits

You are allowed to accumulate your hazardous waste and universal waste on-site in containers or tanks for a specified number of days. If you exceed this period, you must obtain an operating license for the storage facility from the WHMD. These limits are determined by your generator status and are identified in Table 2.6 on the next page:

TABLE 2.6: ACCUMULATION TIME LIMITS

	CESQG	SQG	LQG	SQH	LQH
Storage Time Limit	No time limit if don't exceed volume limit	180 days (or 270 if distance to disposal site is over 200 miles)	90 days	1 year from generation or receiving from another handler	1 year from generation or receiving from another handler
Total Limit	<2,200 pounds non-acute or 2.2 pounds of acute or severely toxic hazardous waste	<6,000 pounds non-acute or 2.2 pounds of acute or severely toxic hazardous waste	No limit	<11,000 pounds	No limit

Hazardous Waste

During this time period, hazardous waste must be properly stored at your facility to prevent contamination of the environment. You must comply with specific state and federal regulations if your company has a Small Quantity Generator or a Large Quantity Generator status. If you are a Conditionally Exempt Small Quantity Generator, you are not required by law to meet all of the requirements providing you do not exceed the 2,200 pounds of non-acute hazardous waste accumulation limit. However, you must still operate your business in a manner to prevent contamination and you are responsible for any contamination that occurs. It is recommended conditionally exempt generators practice storage, secondary containment, and inspection procedures similar to those required of the Small Quantity Generators to provide safeguards against environmental contamination.

Universal Waste

Universal waste handlers can accumulate universal waste up to one year after generation or after receiving the waste from another handler. A longer storage time may be allowed if it is proven that it's necessary to accumulate enough universal waste to facilitate proper recovery, treatment, or disposal. A handler must be able to show how long they have had the waste. This can be done by one of the following:

- Labeling the container with the first date universal waste was put into it or when the container was received.

- Labeling the individual item with the date it was considered a waste or received as a universal waste.
- Maintaining an inventory system on-site which identifies the date it became a waste or was received.
- Placing the universal waste in a specific accumulation area and identifying the earliest date that any universal waste was put in that area.
- Using any other method that clearly demonstrates how long the universal waste has been accumulating.

Transporters may store universal waste up to ten days. If transporters exceed this period, they need to manage the universal waste according to the respective handler requirements.

2.4.7.b Container and Tank Requirements

Hazardous Waste

Hazardous waste is commonly stored in either portable containers with lids such as pails, 55-gallon drums, totes, or in aboveground storage tanks. It can also be stored in underground storage tanks, although it is not usually practical for Small Quantity or Conditionally Exempt Small Quantity Generators due to the costs to install, maintain, and monitor the tanks. Hazardous waste tanks have more regulations than containers. Generally, hazardous waste tanks must have secondary containment and leak detection systems, special requirements for ignitable, reactive, and incompatible wastes, and closure and post-closure requirements. Once each operating day the overfill/spill control equipment, monitoring equipment data, and the level of the waste in aboveground storage tank systems must be inspected. For underground storage tanks containing hazardous waste, a complete inventory of the contents must be conducted at least twice every month. Records of these inspections and analyses must be kept for three years. If you have waste tanks, you may want to review the tank inspection checklist for your company's generator status for more requirements. It is available at **www.michigan.gov/deqwaste**.

Contact your local WHMD district office for information regarding specific hazardous waste storage tank requirements. See Section 2.4.8.a for used oil requirements. In addition, the DEQ WHMD Storage Tank Program regulates aboveground storage of flammable and combustible liquids, including waste, with a flashpoint of less than 200 degrees Fahrenheit (see Section 4.3 for more information). The aboveground storage of flammable and combustible liquids may also be regulated by the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids, and the local municipality's fire prevention code.

Different containers should be used to segregate different types of waste. It is a good management practice to keep a waste log for liquid wastes noting the type and quantity of waste added to the container. Avoid overfilling containers, especially if they are stored outdoors. Fifty-five gallons of some hazardous liquids can expand to 60 gallons or more when exposed to the heat and sun and may overflow. It is also a good idea to use drip pans under the spigots of containers storing liquid materials. Make sure the drip pans are routinely emptied into the appropriate waste container.

The waste regulations do not require generators to post Hazardous Waste Storage Area signs alerting people of hazardous waste accumulation areas although it is considered a good management practice. Post No Smoking signs in areas where ignitable, reactive or incompatible wastes are located.

General requirements for all storage containers include:

- Containers must be labeled (see Section 2.4.8).
- Containers must be maintained in good condition.
- Any leaking containers must be replaced.
- Containers must be kept closed except when adding or removing waste.
- Containers must be compatible with the type of waste being stored in them. The DEQ does not maintain a list of compatible materials but companies can look at the MSDS sheets for suggestions and websites such as **www.flw.com/material/index.html**.
- Incompatible wastes must not be placed in the same container.
- All containers holding hazardous materials must be inspected weekly for signs of corrosion and leaks. The rules do not define "weekly" and a facility can decide what will be the days they want to be considered their "week." The inspections do not have to be done on the same day. The inspectors are looking at whether or not inspections have been done on a regular basis.

  ✓ Large Quantity Generators are required to keep written documentation of inspections for at least three years.

  ✓ Small Quantity Generators and Conditionally Exempt Small Quantity Generators are encouraged to keep records.

  WHMD has the **"Required Weekly Hazardous Waste Maintenance Checklist"** available for your use in meeting this record keeping requirement, but you are not required to use this form.

- Containers must be kept in an area that meets the required isolation distance from property lines. Check for any local requirements. Large Quantity Generators must have ignitable and reactive hazardous waste stored at least 50 feet from the property line. If a company can not meet the isolation distance, see R 299.9306(1)(a) which allows compliance with local fire code to be acceptable. A copy of an approved letter indicating the containers are stored in compliance with the fire prevention code and signed by the authority having oversight of that code shall be maintained at the generator's site.
- Containers must be protected from weather and fire and secure from vandalism and physical damage such as that caused by fork lifts or other equipment. Keep adequate aisle space for unobstructed movement of emergency equipment and personnel. The waste regulations do not specify a minimum specific distance for aisle space. You should review applicable MIOSHA regulations, local fire code, and NFPA standards to see if a minimum aisle space is applicable to your facilities.

- Precautions must be taken to prevent containers holding flammable and combustible hazardous waste from igniting. The flammable and combustible liquid rules require metal containers to be bonded and/or grounded usually by using a bonding strip and ground clamps. Also, MIOSHA requires containers containing flammable material that are stacked to have some barrier, like pallets between drums, to prevent sparking when the containers are moved. The flammable and combustible liquid regulations also prohibit smoking except in designated localities and “No Smoking” signs must be conspicuously posted where hazard from flammable liquid vapors is normally present. No smoking signs are also required for large quantity generators storing reactive hazardous waste.

Secondary containment of the hazardous waste accumulation area is required for the following generators but is not required for satellite containers:

- Small Quantity Generators accumulating over 1,000 kg (2,200 pounds) of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste.

- Large Quantity Generators accumulating any amount of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste.

Liquid hazardous waste and the above-mentioned “F” wastes must have secondary containment or be managed according to the following:

- The base must be free of cracks and have an impervious surface.

- The containment area must be constructed so that it is able to hold either 10 percent of the total liquid volume of all the containers or 100 percent of the volume of the largest container, whichever is greater. If, however, a loss from one container can lead to losses from other containers, the enclosed area must be able to contain 100 percent of all the liquid portion stored in all the containers.

- The secondary containment area must be designed to prevent run-on or be designed with sufficient excess capacity to contain any rainwater or snowmelt or other precipitation that might accumulate in the storage area. It is recommended that containers be stored in areas protected from the weather, if possible.

- The containers must be elevated or put on a sloped base that prevents them from coming into contact with any liquid accumulating within the containment area.

- All spills, leaks, and precipitation must be removed in a timely manner to prevent overflow from the containment area.

Other solid hazardous waste in containers can be put in containment areas where the containers are not in contact with accumulated liquids including precipitation. The containers can be either:

- Elevated, or otherwise protected; OR
- Stored on a sloped surface, or the containment area can be of another design and operated to drain and remove precipitation.

The hazardous waste regulations do not specify exactly how secondary containment areas must be constructed. You can install a curb, a ramped pad, or a containment room; have structures custom-made for your situation; or use commercially available portable pallets that have a holding structure included in their design. Be aware that the spill pallets are not sufficient to meet the secondary containment requirements for liquid hazardous waste because they do not provide adequate protection for "squirt distance," which is the distance a liquid would spurt out if a leak occurred. Other design factors and regulations should also be considered when planning secondary containment. See Section 6.1 for more information about secondary containment and storage of other materials besides waste.

Most fruit and vegetable processors are not subject to the additional federal hazardous waste regulations regarding air emissions of hazardous waste. The RCRA air emission standards were promulgated in phases. The first phase includes 40 CFR Part 264/265, Subparts AA and BB. These subparts address air emissions from process vents associated with certain types of hazardous waste management processes (Subpart AA) and leaks from certain types of equipment at TSDFs and large quantity generators (Subpart BB). At such facilities, owners and operators are required to install control equipment and employ management practices to reduce air emissions from affected units and equipment. Phase II of the RCRA air emission standards, Part 264/265, Subpart CC, regulates organic air emissions from tanks, surface impoundments, and containers located at hazardous waste treatment storage and disposal facilities and large quantity generators. The air emissions standards in Part 265, Subpart CC, do not extend to containers used for satellite accumulation. These requirements are too complex to include in this guidebook. Discuss the requirements for your company with your environmental consultant or WHMD district office, or go to EPA guidance at **www.epa.gov/epaoswer/hotline/training/air.pdf** and RCRA Organic Air Emission Standards for TSDFs and Generators for more information on these requirements.

Universal Waste

Universal waste must be stored in a way that prevents any spills or releases. Containers must be kept closed, in good condition, and be compatible with the type of universal waste stored in them.

2.4.8 Labeling Requirements

The proper labeling of waste helps to ensure that it is not mismanaged. It is a good idea to put one person in charge of making sure the wastes are correctly identified and labeled. Labeling also helps to protect the workers. If the contents of drums are not known, the chances of a worker being exposed to hazards or being injured are great. An explosion can occur if wastes that are incompatible are mixed with unknown wastes in a drum.

Labeling requirements differ for hazardous waste being accumulated on-site and that being shipped. More extensive information is required on labels for shipping. In addition to meeting the labeling requirements for containers, you should also clearly mark the accumulation area so employees know that hazardous waste is being kept there, and any special precautions like no smoking signs, etc.

The USDOT regulations specify which containers, packaging, labels, and placards must be used for shipping hazardous materials. The hazardous waste regulations require Small Quantity

and Large Quantity Generators and Universal Waste Handlers to have the appropriate placards available for the transporter. Placards are required for hazardous waste shipments in excess of 1000 pounds. For more information about these shipping requirements, go to the Michigan State Police, Motor Carrier Division at **www.michigan.gov/motorcarrier** and the USDOT at **hazmat.dot.gov** websites. Also see Section 4.4.

2.4.8.a Labeling Hazardous Waste Satellite Containers

It is permissible to accumulate up to a total of 55 gallons of hazardous waste, or one quart of acutely or severely toxic hazardous waste, in labeled container(s) at the point of generation as long as the operator has control of the processes generating the waste. This accumulation is generally referred to as using satellite containers. These containers must be labeled with the words “Hazardous Waste” AND the waste number OR the chemical name of the contents, and be kept closed at all times except when waste is being added. There is no limit on the number of containers used at one satellite location or how long the satellite container can be kept at its location, as long as it is being used on a regular basis and the total volume limit is not exceeded. Once the volume exceeds the allowable amount, the container holding the excess accumulation must be:

- Labeled with that date (which would be considered the accumulation date).
- Labeled with the hazardous waste number if the chemical name was initially used on the label.
- Moved into the accumulation area within three days.

2.4.8.b Labeling Hazardous Waste for Accumulation On-Site

Each container must be labeled with the following when a waste is accumulated on-site and not in a satellite area:

- The words “Hazardous Waste”.
- The hazardous waste number.
- An accumulation date (meaning the date waste was first put into the container, unless it was first a satellite container – then it would be the date the volume in the container met or exceeded the allowable amount).

Although not required, it is helpful for employees to also label the storage containers with the common name of the waste with which it is being filled. For example, containers might be labeled with “Used Parts Washer.”

You are not required to use any specific label to meet these requirements. You can stencil the information on the containers or you can purchase commercially made labels. You may also use the shipping label as long as the above information is filled out. Make sure the label you use does not become unreadable or dissolve if exposed to the weather or hazardous materials. This can be a problem with containers holding solvents.

2.4.8.c Labeling Hazardous Waste for Shipment

Hazardous waste must be shipped in containers acceptable for transportation and properly labeled. Each container of 110 gallons or less must have the hazardous waste number identifying the waste as well as the following statement:

> *"Hazardous Waste – Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency."*

A container must also have the headings "Generator Name and Address" and "Manifest Document Number," with that information provided. This label and others are available from commercial firms including mail order companies. Properly labeled containers also include:

- Labels clearly identifying the type of waste and its hazards in that particular container.
- The accumulation date.
- Words or symbols for characteristics such as "flammable" and "corrosive" that are clear and understandable to employees.
- Label protection from solvents and weather. You may want to cover the label with varnish or clear packing tape and keep the container under roof cover.

Your hazardous waste transporter should be able to help you properly label the containers for transport. Contact the USDOT for additional transportation requirements.

2.4.8.d Labeling Universal Waste for Accumulation On-Site

You need to label the individual universal waste (such as each thermostat) or the container holding the universal waste with the following while it is being accumulated:

- Electric lamps: the words "universal waste electric lamps," or "waste electric lamps," or "used electric lamps."
- Consumer electronics: "universal waste electronics" or "universal waste consumer electronics"
- Batteries: the words "universal waste battery(ies)," or "waste battery(ies)," or "used battery(ies)."
- Mercury devices: the words "universal waste mercury thermometers," or "waste mercury thermometers," or "used mercury thermometers," and substitute the name of the device if it is not a thermometer.
- Pesticides: include the legible label that was on or accompanied the original product and the words "universal waste pesticide(s)" or "waste pesticide(s)." If the pesticide label is not readable, then use the appropriate label as required by the USDOT.
- Pharmaceuticals: use the original label. If unreadable, it is suggested to label as "universal waste pharmaceuticals."

2.4.8.e Labeling Universal Waste for Shipment

Before shipping the universal waste to another universal waste handler, the originating handler must have made arrangements so that the shipment will be received. If the universal waste is a hazardous material under USDOT regulations, then that waste has to be packaged, labeled, marked, and placarded according to the requirements under 49 CFR 172-180. Discuss these requirements with MSP or USDOT (see Section 4.4).

2.4.9 Managing Specific Waste Streams

This section provides details regarding the proper management of various types of waste that are commonly found in manufacturing operations.

2.4.9.a Used Oil

Management requirements depend on the type of oil, its flashpoint, how it is stored, and how much oil storage capacity is on-site.

Vegetable based oils would be regulated under the federal SPCC (see Section 6.2.3) and the state's Part 5 rules (see Section 6.2.2). Used vegetable oils that are not discharged into the wastewater treatment plant would need to be managed under the liquid industrial waste requirements (see Section 2.3 and 2.4.9.o for grease trap waste).

If you maintain equipment or vehicles, you may have used oil as defined by Part 111 of Act 451 rules, federal used oil regulations in 40 CFR Part 279, and Part 121 which is "any oil that has been refined from crude oil, or any synthetic oil, which has been used and as a result of use, is contaminated with physical or chemical impurities." Examples of used oil include:

- used motor oil.
- used hydraulic oil.
- used transmission and brake fluids.

- spent mineral seal oils.
- non-PCB transformer oils.
- CFC-contaminated oils from air-conditioning and refrigeration units.
- Oil-water mixtures if sufficient oil exists for legitimate recycling and oil does not arise from “de minimis” sources. De minimis means small spills, leaks, or other drippings from pumps, machinery, pipes, and other similar equipment during normal operations. [40CFR279.10(f)].

Used oil under the hazardous waste regulations does not include petroleum-based products that are not used as lubricating agents or in other protective applications. It does not include fuels (gasoline, diesel, and fuel oils), mineral spirits, animal fats and vegetable oils, along with test and calibration fluids. Note: all of these above materials would be subject to the liquid industrial waste (see Section 2.3), federal SPCC regulations (see Section 6.2.3), and state Part 5 rules (see Section 6.2.2).

If used oil has a flashpoint below 200 degrees Fahrenheit, then it is also regulated as flammable and combustible liquids in addition to the waste regulations (see Sections 4.3.2).

Used oil being recycled which contains less than 1,000 ppmw total halogens is not considered hazardous waste and is managed as a liquid industrial waste under Part 121 of Act 451 when it is accumulated, stored, or treated. However, oils containing chlorofluorocarbons (CFCs) removed only from refrigeration units and being reclaimed are not presumed to be hazardous waste even if the total halogens are greater than 1,000 ppmw. These oils would still need to be manifested as liquid industrial waste.

Other used oil is presumed to be mixed with hazardous waste under Part 111 of Act 451 if it contains more than 1,000 ppmw total halogens - a test for chlorine, bromine, fluorine, and iodine content. Most haulers will do a quick test for total halogens before picking up the oil or require you to provide characterization information. You have the option to demonstrate that the used oil does not contain significant concentrations of halogenated hazardous constituents which are listed in 40 CFR 261, Appendix VIII, and thus would not be regulated as hazardous waste. This demonstration is commonly called the “rebuttable presumption.” The generator may use knowledge or testing to rebut the mixing presumption. If the generator has a MSDS sheet for the oil being recycled which shows that it contains chlorinated paraffins, and can also demonstrate that no chlorinated solvents are used in the facility, this should be sufficient knowledge. A facility could also have a laboratory run a chlorinated solvent scan for common halogenated constituents including perc also known as tetrachloroethylene, 1,1,1-trichloroethane, trichloroethylene, carbon tetrachloride, chloroform, and other halogenated solvents suspected of contaminating the oil. If each halogenated constituent is below 100 ppm, then the oil would be considered to be liquid industrial waste. See the EPA "**RCRA Used Oil Rebuttable Presumption Guidance**" at **www.epa.gov/reg5rcra/wptdiv/usedoil/905-R-03-005.pdf** for more information.

USED OIL STORAGE ON-SITE:

- **Do not mix other wastes with used oil**. This restriction applies to Large Quantity Generators and Small Quantity Generators mixing hazardous waste with used oil. Conditionally Exempt Small Quantity Generators of hazardous waste cannot mix halogenated wastes with used oil as of December 16, 2004.

A conditionally exempt generator should check if the recycler will accept mixtures BEFORE adding any waste to the used oil. To avoid additional requirements, do not create mixtures with a flashpoint below 200 degrees Fahrenheit e.g. when adding gasoline to the oil. The oil mixture must also be 1,000 parts per million by weight (ppmw) or less of total halogens. *If total halogens are over 1,000 ppmw and not rebuttable, it must be managed under the hazardous waste regulations and disposal is more costly.*

The regulations do not prohibit liquid industrial waste from being added to used oil, but recyclers may not accept it. Be aware that some antifreeze may be hazardous waste due to lead leaching from solder used in radiators.

- **Store only in containers or tanks that are in good condition and compatible with oil**. Replace any damaged ones. Your used oil recycler may provide containers. It is recommended that used oil be accumulated in aboveground storage tanks or drums instead of in underground storage tanks. Check with your used oil transporter for their preference, but aboveground storage tanks are usually preferable to drums since they are easier and often less costly to pump out. Oils that have flashpoint below 200 degrees Fahrenheit must meet the flammable and combustible liquid regulations including spark protection etc. (Section 4.3.2).

  If drums are used, it is recommended they be stored inside a building if possible. Drums holding oil that is a flammable and combustible liquid must also have something between them to prevent possible sparking if they are double stacked as required by Michigan Occupational, Safety, and Health Act (MIOSHA) regulations.

  If tanks are used, it is recommended to have the following:

  - Supports to keep the tanks off the ground and high enough to allow visual inspection for leaks and corrosion.
  - A release valve or vent to provide tank ventilation which prevents a buildup of potentially volatile fumes inside the tank.
  - Approval by the American Petroleum Institute and American Society of Lubricating Engineers Standards

- **Keep containers closed** except when filling or emptying, and keep the exterior clean of waste and residue. It is recommended to use wide mouth funnels with self closing valves. Having a lockable fill cap to help prevent dumping of materials into the tank when it is not supervised is recommended.

- **Label each container or tank, including fill pipes to underground storage tanks, with the words "USED OIL."** These words can be written on the container or pipe or use preprinted labels.

- **Protect the accumulation containers from weather, fire, physical damage, and vandals.** It is recommended that access to containers be restricted by storing them indoors, or using a fence or lockable fill caps to prevent unauthorized mixing of other wastes.

- **Regularly inspect tanks and accumulation areas for leaks or potential problems**.

- **Secondary containment is recommended for all oil storage, and is required if subject to the federal SPCC regulations (see Chapter 4)**. Examples of small containment units include self made or commercially made containment units, animal water tanks that will hold 55 gallon drums, and double walled tanks. If outdoors, have some type of roof over the storage area to reduce the snow and rain getting into the containment, but if the oil flashpoint is below 200 degrees Fahrenheit, make sure to meet the flammable and combustible liquid requirements. Remove precipitation from the containment structure in a timely manner and preferable discharge it into a city sewer system. If that isn't possible, talk your Water Bureau district office about discharge options.
- **Check if any local ordinances pertain to oil storage**. Local offices may vary so you should check with local authorities like the fire department, local zoning or building office, and local health department environmental health section.
- **Provisions should be made to prevent further release if a leak occurs**. This includes having an alternate location where the remaining oil can be taken after you remove it from the leaking container. You should also have commercial absorbents or granular clay (like cat litter) on hand for controlling small spills. See Sections 6.3 and 6.4 for more information regarding reporting and cleaning up spills.

USED OIL BURNING

See the WHMD used oil burning guidance at www.deq.state.mi.us/documents/deq-ead-tas-usedoil.pdf. If you have any questions about burning used oil, contact your AQD and WHMD district office (see Appendix C for phone numbers). See Section 1.1 for more details regarding air permitting.

OFF-SITE RECYCLING AND DISPOSAL OF USED OIL

If you do not burn the used oil at your site, you can:

- Obtain a site identification number as a liquid industrial waste generator if the company doesn't already have one (see Section 2.4.4) and contract with a permitted and registered liquid industrial waste transporter if the oil is non hazardous. Confirm recycling companies listed in Oils and Solvents category of the Recycled Materials Market Directory have current credentials to transport the oil. Often the used oil transporter will conduct one or two tests at your business site to determine if the used oil is a hazardous waste before accepting it. They usually charge a small fee for these tests. As an alternative, they may require you to determine if the used oil is a hazardous waste and provide them with documentation supporting your results. If the used oil is a hazardous waste, then it must be managed as such.

  Either use a manifest or obtain receipts if hauler is using consolidated manifest (see Section 2.4.5.a), or

- If the oil is hazardous waste, obtain a site identification number as a hazardous waste generator if the company doesn't already have one (see Section 2.4.4) and contract with a hazardous waste transporter to haul the used oil to a treatment, storage, and disposal facility (TSDF). Hazardous waste manifest must be used for SQG and LQG shipments (see Section 2.4.5.), or

- Haul the oil yourself in quantities of 55 gallons or less and meet all of the conditions listed in Section 2.4.5.a. to registered used oil collection centers and aggregation points.

Used oil in a liquid form CANNOT be disposed of by any of the following methods:

- Dumped down drains or sewers or into surface or groundwater.
- Disposed of in landfills.
- Burned in municipal solid waste incinerators or other incinerators without energy recovery.
- Used as dust control or weed control.

USED OIL GENERATED FROM FORKLIFTS AND EQUIPMENT BEING SERVICED BY ANOTHER COMPANY

The generator's requirements for used oil from equipment being serviced by another company depend on if the facility owns the forklift or if the generator leases the forklift.

- If the facility owns the forklift or equipment, they are the used oil generator and must meet the used oil generator requirements. If the company servicing the equipment takes the used oil, they must be a permitted and registered transporter and the waste would need to be manifested per Section 2.4.5.a.

- If the equipment is leased and the company servicing the equipment takes the used oil, the servicing company is a co-generator and they are responsible for meeting the used oil requirements. Although both companies are liable for proper management, the companies should have a contract between them that specifies who is primarily responsible for meeting the generator requirements. The servicing company may transport the oil without being a permitted and registered transporter but they need to notify WHMD (see Section 2.4.4) that they are a:
  - ✓ Used oil collection center or aggregation site
  - ✓ Liquid industrial waste generator
  - ✓ Transporting their own liquid industrial waste

  They also need to provide their customer with a copy of a manifest, a consolidated manifest receipt, or the alternative shipping record to manifesting discussed in Section 2.4.5.a. Discuss additional questions with the WHMD district office.

2.4.9.b Used Oil Filters

The preferred disposal method for all used oil filters is to recycle them as scrap metal. Recyclers are listed in Oils and Solvents category of the Recycled Materials Market Directory. When recycled as scrap metal, the filters are not subject to hazardous waste regulations. Used oil filters being disposed are exempt from hazardous waste regulations if they are non-terne plated and hot-drained in a manner that removes the oil. You should keep documentation from the manufacturer or parts store that indicates that the filters are non-terne. Terne filters are coated with an alloy of lead and tin and need to be handled as

hazardous waste if they are not recycled. You should manage the oil collected from the filters as described in Section 2.4.8.a. Used oil filters should be kept in leak-proof containers if it is necessary to temporarily store them.

The following are common practices when preparing used filters for recycling:

- ✓ Puncture the filter anti-drain back valve or the filter dome end.
- ✓ Hot-drain the filter for a minimum of 12 hours to remove the oil. "Hot-draining" means to gravity drain the filter above 60 degrees Fahrenheit, preferably near engine operating temperature. Include the collected oil from filters with other used oil being recycled.
- ✓ Crush the filter.

Discuss how the filters should be prepared and packaged for shipment with your transporter or recycling company because they may have specific requirements. For example, some companies have specific time periods on how long the filters have to be drained. Some hauling businesses provide the shipping containers. Costs associated with recycling filters depend on the scrap metal and oil markets and the distance to the recycling companies.

If you do not recycle the used filters and they are not hazardous waste, you can prepare them for disposal by using the following steps if your local sanitary landfill will accept them:

- ✓ Puncture the filter anti-drain back valve or the filter dome end.
- ✓ Hot-drain the filter for a minimum of 12 hours to remove the oil. Include the collected oil from the filters with your other used oil.
- ✓ Dispose of the filter in a licensed sanitary landfill.

More information regarding used oil filter management can be obtained from the Oil Filters Manufacturing Council at (800) 933-4583. Request their brochure entitled, **"How to Choose a Filter Management Service."**

2.4.9.c Lead Acid Batteries

Lead acid batteries are banned from disposal in Michigan's landfills and incinerators, so you need to return them for recycling. Recyclers can be found in the Miscellaneous category of the "Recycled Materials Market Directory."

- Most companies handle used lead acid batteries per R 299.9804 which exempts them from most of the requirements of Part 111 of Act 451 when they are recycled. The generator must characterize the waste batteries and meet land disposal restrictions (see Section 2.4.5.c). You do not have to include the battery volume when determining your generator status or use manifests when shipping the used batteries to a recycler. In addition, there is no time limit in the state regulations on how long you may store the batteries before shipping. There may be local ordinances that have time limits or other requirements.

- A company may choose to handle them as a universal waste. Meet the universal waste requirements as outlined in Sections 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12. Universal waste batteries or containers need to be labeled with the words "universal waste battery(ies)," or "waste battery(ies)," or "used battery(ies)." There is a one year limit on storing the batteries.

Shipments need to meet the USDOT transportation requirements unless it is meets an exception in 49 CFR 173.159. Discuss transportation requirements with the Michigan State

Police, Motor Carrier Division at (517) 336-6580. Also be aware storage of lead acid batteries may be subject to SARA Title III section 302 Emergency Planning Notification requirements. Sulfuric acid is classified as an extremely hazardous substance and makes up about 1/9 of the total weight of a lead-acid battery. If you have 1000 pounds of sulfuric acid (approximately 200 car batteries) on site, you are subject (see Chapter 5).

When handling used batteries, you should practice some basic precautions. These include:

- ✓ Never put metal objects on the battery, and remove metal jewelry like rings and chains before handling batteries.
- ✓ Wear gloves and safety glasses or goggles when working with batteries.
- ✓ Avoid getting any acid on your skin or clothing or in your eyes.
- ✓ Keep the battery up-right and carry it in a non-metal, leak-proof container.
- ✓ Do not put excessive pressure on the ends of the battery. If you do not use a battery carrier, place your hands on the opposite corners of the battery to lift and carry.

Used lead acid batteries need to be stored in a manner that prevents their contents from being released into the environment. Store them in a way that prevents them from cracking open, such as stacking them only one layer high on a pallet. They should also be stored in an area that is:

- ✓ Constructed with an impervious surface, such as concrete coated with epoxy, or stored in a child's plastic swimming pool or similar containment area.
- ✓ Well ventilated.
- ✓ Protected from freezing.
- ✓ Secure from vandalism and away from children and pets.
- ✓ Protected from sparks and flames and where no smoking is allowed nearby.
- ✓ Posted with signs which state safety directions and indicate that hazardous waste is present.

If a battery is dropped or leaking, one recommendation is to place it in a plastic pail and use baking soda or lime to neutralize any spilled acid. If you get acid spilled on your skin, immediately rinse the area with water and get medical attention. Remember to properly dispose of the used neutralizing material which may be a hazardous waste since it may contain lead or unneutralized acid. Check with the local wastewater treatment plant to see if they allow you to discharge any liquid acid to their system. Unneutralized liquid residue from a spill has a D002 hazardous waste code, and any battery residue that has lead levels of 5.0 mg/l or more has a D008 waste code.

2.4.9.d Dry Cell Batteries

Dry cell batteries are used to power portable power tools, flashlights, calculators, etc. and found in computers, clocks, and other equipment. It is recommended you recycle them as a universal waste (see Section 2.4.1.c). Recyclers can be found in the Miscellaneous category of the Recycled Materials Market Directory. Universal waste batteries or containers need to be labeled with the words "universal waste battery(ies)," or "waste battery(ies)," or "used battery(ies)." Meet the other universal waste requirements as outlined in Sections 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12.

If you choose to recycle your used dry cell batteries, ask the recycling company what their specific requirements are for packaging and shipping. For example, they may want the batteries sorted by their type such as all mercury batteries stored together, nickel-cadmium batteries kept in another container, etc. You still need to manage the dry cell batteries as hazardous waste or a universal waste while they are stored on-site.

If you don't recycle the batteries, it will be necessary to determine if they are hazardous waste (see Section 2.4.2) and include that amount when calculating your generator status. Examples of possible characteristics include:

- Alkaline batteries may contain regulated amounts of lead (D008), mercury (D009), and cadmium (D006).
- Lithium-sulfur dioxide (Li/SO2) batteries may exhibit reactivity characteristics (D003).
- Ni Cad batteries may contain regulated amounts of cadmium (D006).

Although not recommended, Conditionally Exempt Small Quantity Generators may put spent dry cell batteries in the trash if the waste hauler and licensed disposal facility will accept them for disposal.

Battery shipments need to meet the USDOT transportation requirements. See 49 CFR 173.185 for lithium battery information and 49 CFR 173.189 for batteries containing sodium. Discuss transportation requirements with the Michigan State Police, Motor Carrier Division at (517) 336-6580.

Dry cell batteries containing mercury sold in Michigan are regulated under Part 171 of Act 451 and the federal Mercury-Containing and Rechargeable Battery Management Act.

2.4.9.e Fluorescent Lamps and Other Lights

Determine if you have low mercury bulbs, commonly called green tip bulbs, which are designed by the manufacturers not to be a hazardous waste. Keep documentation supporting that determination like the MSDS or sales literature that may have a statement the lamps are not a hazardous waste or not a RCRA waste. Recycling of low mercury bulbs is recommended to reduce a company's liability in case contamination eventually occurs at the landfill where the solid waste was sent. However, at this time these non-hazardous bulbs can be put in the trash if the hauler and licensed disposal facility will accept.

DEQ recommends companies handle and recycle their other spent lamps as universal waste. Recyclers can be found in the Glass category of the Recycled Materials Market Directory. Most recyclers only want to handle unbroken/uncrushed lamps. Broken lamps can not be handled as universal waste in Michigan. Go to Lamp Recycling at **www.lamprecycle.org** for information about handling broken lamps.

Basically there are two types of recycling options available:

1. Ship the spent lamps to a recycling company. If you are not following the universal waste requirements, you need to manage most lamps as a hazardous waste while they are at your facility and ship the lamps with a hazardous waste manifest. The universal waste shipment would need to meet USDOT hazardous materials shipping requirements (see Section 4.4) if the container holds one pound or more of mercury.

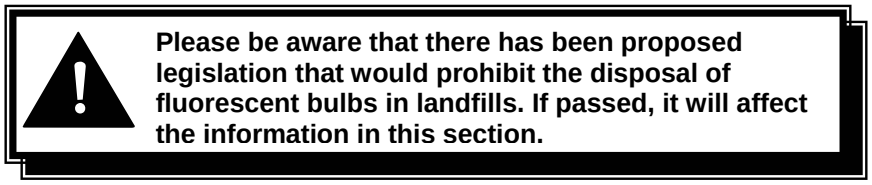
2. Have a recycling company come to your facility and recycle the used lamps on-site. Under this situation, you only need to manage the lamps as a hazardous or universal waste while they are on-site. Once the lamps are processed, the recycler is responsible for any further hazardous waste management requirements, provided all residues remain with the recycler when they leave the facility. If any residues are left at the facility, you are responsible for managing them properly.

Label the individual lamps or containers with the words "Universal Waste Electric Lamps," "Waste Electric Lamps", or "Used Electric Lamps." Meet the other universal waste requirements as outlined in Sections 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12.

If the lamps aren't recycled or are broken, the company needs to determine if the used lighting materials are a hazardous waste. This is normally done by assuming they are hazardous waste or using knowledge about the lamps, such as documentation from the lamp manufacturer. If testing is done, the commonly used lamps would be hazardous waste if the Toxicity Characteristic Leaching Procedure (TCLP) results meet or exceed the following limits:

- ✓ Fluorescent and HID lamps or other lamps containing mercury at concentrations of 0.2 mg/l or more are a D009 hazardous waste.
- ✓ Incandescent or other lamps containing lead at concentrations of 5.0 mg/l or more are a D008 hazardous waste.

Disposal options of hazardous waste bulbs will depend on the company's generator status. At this time Conditionally Exempt Small Quantity Generator may put the bulbs in the trash if the hauler and licensed solid waste disposal facility will accept them. Some won't because of safety concerns for their employees. A SQG and LQG would need to dispose of them as hazardous waste when they are not recycled.



LAMP CRUSHERS

The DEQ does not recommend the use of lamp crushers (sometimes called drum top crushers) for either hazardous waste bulbs or low mercury bulbs. If you are considering the use of a lamp crusher, and preferably before buying an unit, first contact DEQ's WHMD and AQD district offices (see Appendix C for phone numbers) and DLEG, Consultation Education and Training Division Program at (517) 322-1809 to discuss operating and permitting requirements.

An air permit would be required for lamp crushers. And although a waste treatment permit is not required from WHMD for operating a lamp crusher on-site for treating your own hazardous waste bulbs, it is necessary to meet ALL the applicable requirements under R 299.9503(1)(i). This includes proper container management and inspections, use of secondary containment, and emergency preparedness and prevention requirements. Lamps that are crushed can no longer be managed as universal waste. It becomes necessary to determine, usually by having a TCLP done, if the waste and filters generated from the crushing process are hazardous waste. If the residue is not considered hazardous waste, meets LDR standards, and does not contain

free liquids, it can be disposed of in a licensed solid waste landfill if the landfill authority will accept it. There are additional requirements if you handle other companies' bulbs.

2.4.9.f Small Capacitors and Ballasts

Capacitors and ballasts found in light fixtures may have components that contain hazardous substances. There are three known potential sources of PCBs in fluorescent light ballasts: paint on the outside of the ballast, potting material on the inside of the ballast, and liquid inside a capacitor which is inside the ballast. It is also possible that there are other sources of PCBs in the ballast such as plastic insulation on wires. In this section, the word capacitor also refers to ballasts.

If you have waste capacitors, determine if they contain polychlorinated biphenyls (PCBs) which are regulated by EPA under the federal Toxic Substances Control Act (TSCA) and 40 CFR Part 761. Most small capacitors containing PCBs found in lighting fixtures have approximately 1 to 1.5 ounces of PCB fluid. PCB articles include capacitors containing a PCB concentration of 50 ppm or greater, leaking capacitors, and fluorescent light ballasts that have "potting material" (the insulating material inside the ballast) containing PCBs at concentrations greater than or equal to 50 ppm. There are different requirements for these different capacitors. See Section 4.5 for more information about PCBs and for information about larger capacitors that may be found at manufacturing facilities. Prior to 1978, most ballasts were made with small capacitors containing PCB insulating liquid. In some cases, the "potting material" in ballasts has been found to contain 50 ppm PCBs. If you have ballasts manufactured prior to 1978, or your ballasts do not contain the statement "No PCBs," you should assume that they contain PCBs unless you have:

- ✓ Documentation from the manufacturer that states they do not contain PCBs.
- ✓ Chemical analysis which indicates that they do not contain PCBs.

STORAGE

Small PCB capacitors that are not leaking, and do not have potting material containing regulated amounts of PCB, are not subject to the storage requirements under TSCA if they are not from a manufacturer of PCB capacitors or PCB equipment. If the facility manufactured PCB capacitors or PCB equipment at any time, contact EPA Region 5 to discuss your requirements. Since PCBs are considered a polluting material in Michigan, also see Section 6.2.2 regarding if the facility would be subject to the state Part 5 rules summarized in that chapter.

A facility may store leaking capacitors, or ballasts that have PCBs in the potting material, up to 30 days after being removed from service, without meeting containment and other storage requirements if the following conditions are met:

- The items or container it is put in is dated when the device was removed from service for disposal.
- The storage area is marked with a sign at least 6 inches in length on each side. The letters and striping need to be on a white or yellow background and durable (see figure 1 in 40 CFR 761.45).
- The leaking devices must be placed in USDOT-approved drums with adequate absorbent such as sawdust or soil to absorb any liquid remaining in the capacitor.

- PCB containers containing liquid PCBs at concentrations of >50 ppm must have a Spill Prevention, Control and Countermeasure Plan (SPCC) prepared for the temporary storage area (See Section 6.2.3).
- Liquid PCB waste must be in packaging authorized in the USDOT Hazardous Materials Regulations (see Section 4.4).

DISPOSAL

If the device is regulated under TSCA, it is exempt from the hazardous waste regulations. See the summary of TSCA Disposal Requirements for Fluorescent Light Ballasts at **www.epa.gov/pcb/Ballastchart.pdf**. The devices may be disposed of in a licensed landfill or chemical disposal facility depending on the amount of PCBs and if leaking or not. Not all landfills will accept PCB waste. Look in the telephone yellow pages under waste disposal or on EPA's web site at **www.epa.gov/pcb** for companies servicing your area. These firms may also perform minor PCB spill cleanups and arrange for the removal of PCB capacitors. Contact the disposal company for their specific requirements, including what PCB waste code would be used on the waste manifest.

Discuss TSCA related questions about PCB article classifications, storage and disposal, including recordkeeping requirements with EPA Region 5. The DEQ recommends that PCB-containing light ballasts be managed and disposed of as PCB waste due to potential future liability issues.

Questions regarding management and disposal of PCB articles should be directed to EPA, Region 5, Office of Pesticides and Toxic Substances at (312) 886-7061. Additional information can be found on the web site at **www.epa.gov/pcb**.

If the device is not regulated under TSCA, it is necessary to determine if other components in the device cause it to be a Part 111 hazardous waste or a Part 121 liquid industrial waste. Occasionally lead, cadmium, chromium, or other D004 through D017 constituents might exist at a hazardous waste regulated concentration. PCBs by themselves are not a regulated hazardous waste. If it is determined the device is a hazardous waste because of other constituents, then it must be managed according to the applicable Part 111 of Act 451 requirements.

If it is determined the capacitor is not TSCA regulated, is a hazardous waste generated by a Conditionally Exempt Small Quantity Generator, or contains liquids, it would be regulated as a liquid industrial waste. Either hire a permitted liquid industrial waste transporter or transport the devices in your own company's vehicle (see Section 2.4.5) and take them to an approved disposal site.

- If capacitors are hauled to a Michigan facility and you hired a permitted transporter, complete a DEQ waste manifest for each shipment. For capacitors that are not characterized as a hazardous waste and contain liquids:
    - Use the waste code 026L for PCB containing devices; or
    - Use the 029L waste code for other ballasts or capacitors containing non-PCB liquids on the manifest.
- If capacitors are shipped out of state, contact the receiving state for their requirements.

- If you hauled it yourself in quantities of 55 gallons or less, keep the necessary records as outlined in Section 2.4.5.

If the devices are a hazardous waste from a Small Quantity or Large Quantity Generator, hire a permitted and registered hazardous waste transporter and use the applicable hazardous waste code on the manifest (see Section 2.4.5). Discuss these requirements with the WHMD district office.

2.4.9.g Sorbents

Sorbents used to clean up spills can be sent to a licensed sanitary landfill (Type II) if:

1. The landfill will accept them. Check with the landfill operator; and
2. The sorbents contain no free liquids (they pass the paint filter test); and
3. The materials are either of the following:
   - ✓ Are not a hazardous waste, including sorbents used for oil spills.
   - ✓ Are a hazardous waste generated by a Conditionally Exempt Small Quantity Generator.

Except under specific circumstances, it is not permissible to intentionally add wastes, including used oil, to sorbents for disposal in a landfill. Used sorbents that are not considered hazardous waste and do not pass the paint filter test must be handled as a liquid industrial waste.

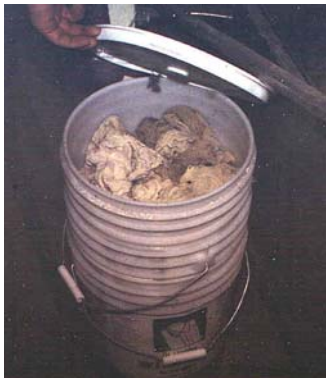
Generators must handle the sorbents as hazardous waste if the material was used to clean up listed hazardous waste. Generators must also evaluate used sorbents to determine whether they exhibit one or more hazardous waste characteristic and manage them appropriately. This volume of hazardous waste needs to be included in calculating your generator status. Remember that this quantity could affect your generator status and, therefore, your requirements.

A WHMD permit is not required to add absorbent materials to hazardous waste in a container if all the conditions in R 299.9503(1)(h) are met and the treatment does not violate the land disposal restriction requirements.

Some companies offer services where used sorbents are returned to them for oil recovery and then the sorbents are able to be reused. Search the internet or search for recyclers listed in Oils and Solvents category of the Recycled Materials Market Directory by using the term “sorbent.” For manufacturers and suppliers of sorbents containing recycled materials, go to **www.epa.gov/cpg/products/sorbents.htm**.

2.4.9.h Shop Towels and Other Textiles

Disposable rags, uniforms, gloves, and other textiles must be handled as a hazardous waste if they contain free liquids that have a flashpoint below 140 degrees Fahrenheit, were used with a listed waste (commonly the F001-F005 solvents), or have other hazardous waste characteristics. This also applies to reusable materials that are being discarded. If textiles were used as a sorbent to clean up spills, also see Section 2.4.9.g.



Textiles that are spontaneously combustible are a D001 hazardous waste. When determining the waste code for the textiles used with solvents, it is necessary to determine if it is a listed or characteristic hazardous waste. This distinction is based on whether the solvent is a waste before or after the textile is used.

- If a listed solvent is put onto the textile and the textile is subsequently used to clean a part, the facility needs to determine if the resulting waste is characteristically hazardous.
- If the listed solvent is put onto the part and the textile is then used to remove the excess solvent waste, the textile is automatically a listed hazardous waste.

Note: EPA has a proposed rule that may change the above regarding listed solvents and textiles. Discuss with WHMD district office for current status.

MIOSHA has requirements that combustible rags or waste be put into metal waste cans immediately after use. In addition, the contents of the waste cans are to be properly disposed of at least once daily at the end of each shift. Discuss with MIOSHA Consultation Education and Training Division at (517) 322-1809.

The volume of discarded textiles needs to be included when calculating your hazardous waste generator status. It is estimated that a 55-gallon drum holds approximately 125 pounds of used rags without free liquids, but the weight varies with the textiles.

Reusable textiles are exempt from the hazardous waste regulations if the textiles meet all of the following requirements:

- Textiles are being commercially laundered or dry-cleaned for reuse.
- Textiles do not contain free liquids (i.e., you cannot squeeze any liquid from the textiles).
- The containers used to store the textiles do not contain free liquids.
- Hazardous waste is not mixed with the textile after its original use.

Let your cleaning company know what type of chemicals you are using with these materials so they can determine the best way to clean them and the affect on their own waste stream. Reusable textiles being sent for cleaning are not included when calculating your hazardous waste generator status.

Caution: There have been some instances where textiles have been exposed to chemicals from other business operations when shipped off site for cleaning. If your company has a sensitive process, you may want to make arrangement with the cleaning company that your textiles are cleaned separately from other rags and only your rags are returned to your company.

2.4.9.i Spent Parts Washer and Other Solvents

There are several different types of solvents used in parts washers or as degreasers, and the management of the used solvent and the generated sludge depends on if it is a hazardous waste or not (see Section 2.4.9.h for information about solvents on rags). Spent solvent and sludge can be either a listed or characteristic hazardous waste, depending on the chemical and contamination sources. Cross contamination is a concern, especially in facilities without strict policies prohibiting employees from using parts washer fluids to clean other equipment or mixing other wastes with it or in facilities using aerosols. One common situation when cross

contamination occurs is when employees add other degreasers that contain tetrachloroethylene (TCE), which is also known as perchloroethylene (Perc), to the parts washer solvents. One suspected practice that may cause contamination involves using aerosol products containing TCE on a part to accelerate the cleaning action and then putting that part into the parts washer. The used parts washer may also become a D039 waste if the TCLP concentration for TCE exceeds 0.7 milligrams per liter.

Common parts washer fluids include the following:

- Mineral spirits (naphtha or Stoddard solvent) are commonly used. Products containing mineral spirits have variable flashpoints. Mineral spirits with a flashpoint of 140 degrees Fahrenheit and above are not a hazardous waste due to their ignitable characteristic but may be contaminated with other hazardous waste constituents through use requiring them to be managed as hazardous waste. However, mineral spirits with a flashpoint below 140 degrees Fahrenheit are classified as a D001 hazardous waste. Usually the mineral spirits with the lower flashpoint are redistilled and reused, while the nonhazardous liquids are often disposed of instead of being recycled.

- Aqueous cleaners are a recommended replacement for the other solvent types for several reasons, even though some aqueous cleaning formulations contain solvent additives such as terpenes, glycol ethers, and alcohols. The aqueous cleaners contain less volatile organic compounds (VOCs), are usually less toxic, and are generally nonhazardous waste unless they have been contaminated with a listed waste or have acquired a contaminant that causes the solvent to exhibit a hazardous waste characteristic. One way to manage spent aqueous washers is to discharge this waste stream to a municipal sewer system, if the company has permission from the sewer authority to do so.

- Methylene chloride is occasionally used as a paint remover or to clean “white metals” such as die cast zinc or aluminum. Spent methylene chloride used for degreasing usually has a waste code of F001. If it is contaminated with other wastes, however, it may also have a waste code of F005.

Facilities should evaluate the parts washers they are using to determine if an alternative product can provide the same desired results without generating hazardous waste. Go to **http://sage.rti.org** for information and resources about solvent and process alternatives for parts cleaning and degreasing. Management can also reduce the chance of cross contamination by controlling the inventory of products used at the facility and educating their employees on the importance of not contaminating the parts washer with other wastes. See Chapter 1 or discuss with your AQD district office questions regarding VOCs emission calculations. In addition, air quality regulations require that parts washer lids be kept closed when not in use on units if the solvents contain regulated VOCs (see Section 1.5).

ON-SITE SOLVENT RECYCLING

Facilities that use large volumes of solvents should consider recycling the used solvents on-site. Still manufacturers can be found on the EPA vendor website at **es.epa.gov/vendors/index.html,** Iowa’s Waste Reduction Center at http://www.iwrc.org/NewVendor/, or search the Internet. See Chapter 10 for more information on pollution prevention.

It is not necessary to obtain a hazardous waste permit to recycle solvents at the site of generation, but there are requirements to operate a solvent distillation unit or still.

- Keep a log of the amount of waste treated onsite. This amount needs to be included when calculating the company's hazardous waste generator status (see sample calculation below).
- Meet the generator hazardous waste requirements while managing solvents on-site (e.g. labeling, containers, containment, etc).
- Use units approved or listed in accordance with UL 2208 Standard for Solvent Distillation Units
- Locate still according to manufacturers' instructions and away from ignition sources.
- Only use with materials specifically listed on the still label or instruction booklet.
- Meet flammable and combustible liquids and waste storage requirements. The NFPA 30 adopted in the flammable and combustible liquid rules have requirements for stills. However, there are several types of operations that are exempted in Section 5.11 including stills used in research, testing, or experimental processes, petroleum refineries, chemical plants, or dry cleaners.
- Do not exceed 60 gallon batch capacity. An air quality permit may be necessary if there are air emissions or the still exceeds 55 gallons batch capacity. Check with the AQD district office (see Appendix C for phone numbers) if you are considering using a still.
- Check if the local fire department and your insurance company have requirements for still operations.
- Periodically review the servicing schedule to determine if the best solvent is being used and the schedule meets the facility's solvent requirements.

OFF-SITE SOLVENT RECYCLING

A manufacturer may ship the used solvents off-site to a commercial recycler for reclamation. Recyclers can be found in the Oils and Solvents category of the Recycled Materials Market Directory. Confirm they are a permitted and registered transporter and meet waste manifest requirements. This waste would be counted towards your generator status. A Small Quantity Generator may ship solvents for reclamation under a tolling arrangement as discussed in Section 2.4.5.a. Call your WHMD district office (see Appendix C for phone numbers) if you have any questions about reuse or recycling of solvents.

How do I calculate the amount of hazardous waste generated from a recycling still?

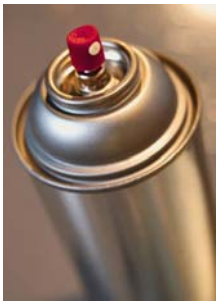
The following scenario is to explain how to count the solvent used and put through a recycling unit and the sludge from the unit when determining your generator status. The original solvent is counted once during the calendar month, plus any additional solvent added during the month, and any generated still bottoms. The count starts new every month.

The scenario has a company using a F-listed solvent to clean paint spray guns and it becomes contaminated. The solvent is removed from the process, reclaimed through distillation, and returned for continued use as a solvent in the same calendar month. The scenario assumes the solvent is managed in containers prior to the distillation process.

On June 1, 50 gallons of dirty solvent is removed from the process and accumulated prior to reclamation. This amount must be counted towards the generator status. After distillation, 45 gallons cleaned solvent plus 5 gallons new solvent is put back in the process.

On June 16, 50 gallons of dirty solvent is removed again, put in a drum and distilled the next day. Since 45 gallons of this solvent was removed previously for reclamation and was already counted on June 1, only need to include in the generator status calculation the 5 gallons of solvent that had been added. In addition, 5 gallons of still bottoms or sludge was created, so that amount is added to the generator status calculation. So in this scenario, 45 + 5 + 5 = 55 gallons of hazardous waste was generated in June from solvent use and recycling.

2.4.9.j Aerosols



Aerosols are a commonly overlooked hazardous waste and industry uses numerous spray cans including degreasers, paints, etc. Residues in aerosol containers are exempt from the hazardous waste regulations if the cans are “empty,” which means the pressure in the container approaches atmospheric pressure and they contain less than one inch of non-acute residue. One practical test is to turn the aerosol can upside down and press down on the nozzle. If you don’t hear or see anything and the can feels light, it is usually empty. This quick test is not accurate if the nozzle is blocked. It is recommended to recycle empty cans for scrap metal where possible. Unfortunately, salvage yards in some areas of the state will not accept them at this time. Check with your local salvage yard or look for recyclers of empty cans in the Recycled Materials Market Directory under the Metals category.

If the spray can contains product and it needs to be disposed of, you must determine if it is a hazardous waste. Not only is it illegal to intentionally spray out the can’s contents just so it meets the “empty” definition, it is also costly in lost product. Look at the MSDS or label to help determine if any of its contents are a hazardous waste:

- Are the cans contaminated with “F” listed solvents? On occasion an aerosol is F-listed if, for example, the outside of the aerosol can was contaminated with a spent solvent on the “F” list. That is because the container would be considered to be contaminated by the waste and therefore due to the "mixture rule" it would be an “F” listed waste. Unwanted solvents in the aerosol cans are not normally “F” listed because the solvent has not yet been used.

- Do the contents have the single active ingredient on the “U” or “P” list?

- Do the contents display one or more of the characteristics? Cans containing flammable propellants or other ingredients would be ignitable (D001). Some products may be reactive (D003).

P2 tip: If use aerosols that are a characteristic hazardous waste only because of the propellant, consider using products that come in pumps instead of

For example, aerosols products containing a mixture of tetrachloroethylene (perc) in regulated concentrations of 0.7 mg/L or more with other ingredients is a D039 waste. If the unwanted aerosol product is perc, it would be U210.

AEROSOL CAN CRUSHERS AND PUNCTURING DEVICES

Aerosol can crushing and puncturing devices normally fit onto a 55-gallon drum. If you are considering operating an aerosol can device, first contact DEQ's WHMD and AQD district offices (see Appendix C for phone numbers) and MIOSHA, Consultation Education and Training Division at (517) 322-1809 to discuss any operating and permitting requirements. It may be possible to meet an air permitting exemption. The WHMD oversees the regulations pertaining to the operation of these devices which requires the generator to meet the requirements of the hazardous waste rule R 299.9503(1)(i). This includes, but is not limited to, container management, secondary containment, and preparedness and prevention requirements.

If you do operate a can crushing device, it is necessary to characterize the carbon filters when they are replaced, and any liquids collected in the process, to determine if these materials are a hazardous waste. The collected waste is often flammable (D001) waste so you will want to ensure that no sparking or smoking occurs near the device and meet the other regulations pertaining to flammable and ignitable liquids (See Chapter 4). The drums are usually handled as a satellite container while being filled (see Section 2.4.8). In addition, Large Quantity Generators may be subject to the 40 CFR 264 and 265 Subpart BB and CC air emission requirements. Direct any questions to the WHMD district office.

2.4.9.k Painting Wastes

Proper characterization of air filters, paints, solvents, and other wastes resulting from maintenance painting operations requires knowing which chemicals are in the paints and other products used, if paint booths are used, what is used to clean out the paint guns and lines, and how the solvent was used (also see Sections 2.4.9.i and 2.4.9.h regarding solvents). If you have any questions about your waste generated from painting operations, call your WHMD district office (see Appendix C for phone numbers).

Identify if any of the paints and chemicals used are listed or characteristic hazardous waste. If the product ingredients are listed as an "F" waste, determine if the product was used as a cleaning solvent or as an ingredient in a paint product. If it was used as a solvent, then the "F" listing applies. Most common paint wastes include F005, F003, D001, D035, and occasionally D039. Paint formulations vary, but metals in paints such as cadmium, lead, and chromium may be in amounts that fail the TCLP. Paint filters and waste rags may also be a D001 waste because they are spontaneously combustible or contain enough ignitable liquid waste. Some paint and solvent recyclers are listed in Oils and Solvents category of the Recycled Materials Market Directory. Confirm they are a permitted and registered transporter (see Section 2.4.10).

Example 1: A paint booth operation at the facility uses a solvent product (that contained methyl ethyl ketone [MEK] and other listed solvents which resulted in a blend that was over

10 percent by volume of the product). This solvent was used to clean out the paint gun and line and directly sprayed into the filters. The waste solvent would be an F005 waste because the solvent was used for its cleaning properties. The hazardous waste mixture rule would apply to the paint booth filters and they would also be an F005 waste because the F005 solvent was sprayed onto the filters. If the solvent used to clean up the paint gun and line was sprayed into a container instead, the paint booth filters would not be a F005 waste but the used solvent would be a F005 listed hazardous waste.

Example 2: A paint product contained MEK and was used for its intended purpose as a paint. The waste paint and paint booth filter waste would not be an “F” listed waste as long as other listed solvents were not used as a gun and line cleaning agent. In this case, the MEK was not used as a solvent. However, it could be a D035 if the concentration met or exceeded 200 ppm in a liquid.

Example 3: A solvent based paint was thinned with lacquer thinner before being sprayed. Any leftover paint would probably be an ignitable characteristic waste. Paints and related wastes may also be regulated hazardous waste because the ingredients contained metals or other chemicals included in the “D” wastes in regulated concentrations or because it met ignitable characteristics.

See Chapter 1 or discuss with your AQD district office questions regarding VOCs emission calculations from painting operations.

2.4.9.l Wastes Containing Silver

Some industries may have wastes from photo processing or other processes that generate wastes containing silver or other regulated wastes.

Used fixer and other solutions:

Used fixer or other solutions may contain silver in amounts that can not be discharged to a wastewater treatment plant or septic system. It may be necessary to install a silver recovery unit. Before purchasing or leasing a unit, check with the waste water treatment plant for any local requirements to discharge processed liquids. Offsite shipments of the silver recovery unit cartridges and solutions by SQG and LQG must be done by a permitted and registered transporter and manifested as a D011 hazardous waste if the solution has a TCLP concentration of 5.0 milligrams per liter (mg/l) or more of silver.

Conditionally Exempt Small Quantity Generators (CESQG) may take the silver recovery unit cartridges and liquid solution waste to a destination facility themselves if meet conditions in Section 2.4.5, or hire a permitted and registered transporter to haul the liquid wastes. Liquid solutions, and cartridges that contain free liquids, that do not meet this silver concentration would be manifested and shipped using a 033L liquid industrial waste code.

Recovered silver flake which does not contain liquids is considered product and is not manifested or shipped as regulated waste when sent offsite. All shipments must comply with USDOT requirements regardless of the status under waste regulations.

Used developer and system cleaners:

Check if the waste water treatment plant will allow discharges of used developer and system cleaners. If not, check if the fixer recycler will accept the used developer. If the printer is not

taking the used developer themselves to a destination facility, hire a permitted and registered transporter when shipping used developer off-site as liquid industrial waste and manifest the load using a 033L liquid industrial waste code. Do not mix used fixer and developer.

Cleaners used in developer systems may contain chromium. Review the MSDS and other information to determine if the waste cleaner has a chromium TCLP concentration of 5.0 mg/l or more. If so, it would be considered a D007 hazardous waste. If possible, switch to a nonchromium cleaner.

Used film:

It is recommended used film be recycled for silver. Recyclers can be found in the Michigan Recycled Materials Market Directory under the Metal category. CESQG may dispose used film in the trash. SQG and LQG may also put it in the trash unless the used film has a silver TCLP concentration of 5.0 mg/l or more classifying it as a hazardous waste although this is unusual. Unused or expired film can normally be returned to the dealer or manufacturer.

2.4.9.m Electronic Waste

Computers, printers, telephones, televisions, and other electronic devices containing circuit boards may be handled as universal waste in Michigan. Label the devices or the containers with "Universal Waste Electronics" or "Universal Waste Consumer Electronics" and meet the applicable universal waste handler requirements (see Sections 2.4.1.c, 2.4.4, 2.4.5, 2.4.7, and 2.4.8).

Universal waste handlers of electronics may do any of the following and still be a handler:

- Repair the device for potential direct reuse.
- Remove other universal waste e.g. batteries from the device
- Remove individual modular components for direct reuse.

If the wastes are not recycled, then it is necessary to determine if it is hazardous waste. See the "**Electronic Equipment**" publication for more information.

2.4.9.n Waste containing radioactive materials

Some companies may generate "mixed waste" which contains both hazardous waste and source special nuclear, or byproduct material subject to the Atomic Energy Act of 1954. This waste is managed under both the hazardous waste and the radioactive material regulations. See R 299.9822 regarding low-level mixed waste (LLMW) and R 299.9823 regarding LLMW and naturally occurring and/or accelerator-produced radioactive materials (NARM). Discuss requirements with the WHMD Radioactive Materials and Standard Unit at (517) 241-1275 and WHMD district office.

Waste Exit Signs

Do NOT landfill exit signs that contain tritium or radioactive hydrogen-3 gas. These are to be returned to the manufacturer if possible due to the radioactive material contained in them. A label should be on the signs giving proper disposal directions. These exit signs are regulated under 10 CFR by the NRC and not under the EPA hazardous waste regulations.

The shipping requirements for these exit signs are regulated under USDOT regulations (49 CFR 173.424 "Excepted packages for radioactive instruments and articles.") Contact the shipping companies for their specific policies and contact the Michigan State Police, Motor Carrier Division with shipping questions.

MIOSHA regulations requires exit signs in buildings. Information for “Purchasing for Pollution Prevention: Environmentally Preferable LED Exit Signs” can be found at **www.informinc.org/fact_P3exit_signs.php#trash**.

Waste Industrial Smoke Detectors

Remove any batteries from the detector and handle the battery as a universal waste or under the applicable hazardous waste regulations for that company's hazardous waste generator status.

The specific requirements a company would have to follow would depend on if the smoke detectors were subject to the federal nuclear regulations or if it was a hazardous waste. There are two types of materials commonly found in used smoke detectors.

- The older models may contain non-exempt radium-226 sources that are regulated under the state of Michigan. These detectors should not go to a solid waste landfill but returned to the manufacturer or disposed as radioactive waste.
- The newer models contain a small americium source. The combined smoke detector and americium source have a specific exemption in the federal regulations. Large quantities such as resulting from a major construction renovation project should not be disposed without first checking with officials of the NRC or the WHMD radioactive materials staff.

  If the smoke detectors are not recycled for metal, some smoke detectors could be subject to the hazardous waste regulations because the amount of metal in the detectors may fail the Toxicity Characteristic Leaching Procedure. Small quantity generators and large quantity generators can not put hazardous waste smoke detectors in the trash. Conditionally exempt small quantity generators may dispose smoke detectors in licensed solid waste landfills if the landfill will accept them. If these smoke detectors are not classified as a hazardous waste, then they may be sent to a licensed landfill. However, companies should contact the landfill if disposing of large numbers (roughly around 25 or so) because the waste load may set off the landfill's radiation detectors.

2.4.9.o Grease Trap Waste

Grease trap waste generated from the process line or from the employees’ cafeteria is regulated by local, state and federal regulations. The local building office, health department, and wastewater treatment plant, along with the Michigan Department of Agriculture (MDA) may have requirements regarding installing and maintaining a grease trap. Find the MDA requirements in the 1999 FDA Food Code at www.michigan.gov/mda “Food and Agribusiness”. There is a difference in the regulatory definitions of grease trap waste and other cooking grease or oils.

Disposal requirements depend on local options:

- If connected to a municipal wastewater treatment plant, check with them regarding local discharge limits or restrictions.

- If connected to a septic system or have a groundwater discharge permit, check if discharge is allowed under permit conditions.
- If have small amounts of grease trap waste, see if a licensed municipal waste landfill will accept it after the grease trap waste is solidified (usually by draining off the liquid).
- If the above options are not available, then grease trap waste removed from specific "grease" sewer traps that contains free liquids, are handled as a liquid industrial waste (waste code 036L, or 036LC if on a consolidated manifest). See Section 2.3. Permitted and registered liquid industrial waste transporters can take grease trap waste although many don't because it requires special equipment (usually they inject hot water) to re-liquefy the grease, and it may re-coagulate in their trucks and is a mess to unload. The DEQ does not maintain a list of transporters that specifically haul grease trap waste. One way to look for companies offering pickup service is by searching Internet resources like www.switchboard.com and comparing companies to make sure they are permitted and registered liquid industrial waste transporters at /www.michigan.gov/deq "Waste" "Hazardous & Liquid Industrial Waste Transporters" or compare to information in the Waste Data System at www.deq.state.mi.us/wdspi/.

2.4.9.p Refrigerants

See Section 1.19 regarding servicing refrigeration equipment. Removed refrigerants that are recycled or reclaimed are not considered hazardous waste. If the materials are in a liquid form, they would need to be handled as liquid industrial waste. See Section 2.3. If you have oils contaminated with CFCs, see Section 2.4.9.a. You can find EPA approved refrigerant reclaimers and more refrigerant information at www.epa.gov/ozone/title6/608/index.html.

2.4.10 Selecting a Transporter and TSDF

Because transporter and treatment, storage and disposal facilities (TSDF) services and costs are highly varied, you should contact and interview several facilities to obtain price estimates before making a selection. Transporters may be independent companies or may be affiliated with a TSDF. There are requirements for transporters hauling either hazardous waste or liquid industrial waste. A transporter needs to be registered and permitted under both uniform transporter programs to haul either of these wastes.

You might want to tour the TSDF yourself to see its operations. Remember that, as the generator, you are ultimately responsible for how your waste is transported and disposed, so it is wise to choose a company on more than price. Use the following list of questions as a starting point for your interviews, and compare the companies' responses before making your selection. It is important to select a waste transporter and TSDF that you are comfortable doing business with and who provides the best services for your particular circumstances, at a reasonable price.

Questions to Ask Prospective Transporters and TSDFs

1. Is the hazardous waste transporter currently permitted and registered in Michigan? Does the TSDF where the waste is being taken to have a current operating license? You may search the Waste Data System for transporters and TSDFs. Lists of permitted and licensed transporters and TSDFs are also available via the WHMD web site **www.michigan.gov/deqwaste**. Another option is look for companies in the telephone directory's yellow pages under the heading "Waste Reduction, Disposal, and Recycling Service."

A TSDF can accept only those types of wastes allowed by its permit or operating license. Special fees may be charged for small quantities of hazardous waste requiring extra handling by the facility.

2. Is liquid industrial waste being taken to destination facilities that has notified the WHMD of their activities, and are operating according to the liquid industrial waste regulations? You may search the Waste Data System for companies that have notified as being liquid industrial waste designated facilities. Wastewater treatment plants accepting wastes being trucked into their facility should have notified.

3. Is the transporter currently permitted and registered to transport liquid industrial waste in Michigan? You may search the Waste Data System for companies that have notified as being liquid industrial waste transporters and see summary of their compliance history. A list of permitted and licensed transporters is also available via the WHMD web site **www.michigan.gov/deqwaste** "Hazardous and Liquid Industrial Waste Transporters". Another option is to use the telephone directory's yellow pages to find companies that deal with liquid industrial waste in your area. Look under the heading "Waste Reduction, Disposal, and Recycling Service," or for used oils look under the heading "Oils-Waste" and compare that to the DEQ information.

4. What type and amount of insurance does the transporter or TSDF carry? Permitted and registered transporters are required to have insurance coverage to cover accidents and environmental spills. You may want to ask for proof of current insurance coverage for your records.

5. If you are hiring an independent transporter, find out where the transporter is taking your waste. Do they use a transfer facility? If the waste is going to a treatment facility before disposal, where is the ultimate place of disposal for the treated wastes?

6. Does the transporter or the facility offer special services for small volumes of waste? Some transporters might not service Small Quantity or Conditionally Exempt Small Quantity Generators. Do they provide containers for your type of waste?

7. Does the transporter or TSDF or destination facility initially prepare the waste manifests or will they assist you by reviewing manifests you prepare for correct and complete information (see Section 2.4.5)? Does the TSDF provide the land ban restriction notices (see Section 2.4.5.c) and do they help complete them?

8. Does the transporter test used oil prior to picking up the waste or do they require you to do any testing (see Section 2.4.9.a)? Does the TSDF require specific tests or laboratories to be used (see Section 2.4.2)?

9. Is there anything additional to the labeling requirements you must do before your waste is picked up by the transporter or accepted at the TSDF or designated facility? Do they provide the shipping labels (see Section 2.4.8.c)? Some facilities have their own requirements as to how they accept waste material. For example, some companies will not accept hazardous waste in drums even though this is a common storage and only pick up bulk loads.

10. Does the transporter or TSDF serve other businesses similar to yours? If so, obtain telephone numbers and contact these companies to evaluate the services they received.

11. Does the transporter deliver waste to the treatment, storage, or disposal facility the same day that it's picked up? If not, ask questions about the company/location where the waste will be stored. Hazardous waste must reach its final destination within 10 days.

12. What steps does the transporter or TSDF operator take to avoid spills or leaks and minimize the facility's own legal liability? You may want to note for your records the method of temporary waste storage used at a treatment or recycling facility. If your waste is going to a hazardous waste landfill, ask about their leachate control and ground water monitoring provisions. Use this information when comparing companies. A company that costs more to take your waste but practices an extensive environmental protection program may actually be cheaper in the long run than a company that initially costs less but does not practice adequate environmental protection. If contamination occurs, you can be held financially responsible for the site cleanup costs.

13. Have any violations of state regulations occurred? You may also search the Waste Data System for information regarding a company's compliance history. Call the appropriate WHMD district office to discuss transporter or TSDF violations. Transporter and TSDF inspection files are kept at the WHMD district office responsible for the area where the business is located. If you want to review the files, contact the district office to confirm the appropriate office and set up an appointment.

14. Will they enter into a written contract with you? For liability protection, it is a good idea to have a written contract that clearly identifies what specific services the company will provide. Be cautious of firms who do not want to offer a written contract for services.

Conditionally Exempt Small Quantity Generator are not required to hire a permitted and registered hazardous waste transporter or dispose of hazardous waste at a TSDF, but it must be disposed of at a facility that can legally accept the waste. If hiring a hauler, your liquid waste must be hauled by a permitted and registered transporter. You may haul your own generated waste when you meet the requirements outlined in Section 2.4.5.a. It is recommended that it be sent to a hazardous waste disposal facility, waste recycler, or in a few Michigan areas, the local household hazardous waste collection programs accept hazardous waste from Conditionally Exempt Small Quantity Generators for a fee. A list of local collection sites is available at **www.michigan.gov/deqrecyling**. Your waste that is not considered a liquid waste (passes the paint filter test) can be disposed of at a sanitary landfill if the landfill authority will accept it (see Section 2.2).

2.4.11 Disposing Hazardous Waste On-Site

You may NOT dispose of hazardous waste on your site unless you have obtained a construction permit or operating license for disposal from the WHMD. Under limited circumstances, it might be legal to dispose of certain types of waste into a sanitary sewer or on your site without a TSDF permit. See Section 2.4.1.d.3 and Chapter 3 on wastewater management for more information. Contact your local wastewater treatment facility and your WHMD district office for information about which wastes from your facility can be disposed of in this manner.

2.4.12 Employee Emergency Training

In addition to following training requirements, see Chapter 6 for contingency planning, release reporting, and response requirements.

HAZARDOUS WASTE

This section discusses emergency training requirements under the hazardous waste regulations. See Section 4.4.10 for training requirements under the transportation regulations. MIOSHA also has regulations that require employees to be trained on proper waste handling and how to effectively respond to emergencies in a manner that protects their safety and the environment. Training involves familiarizing employees with emergency procedures; emergency equipment; emergency systems (such as communication or alarm systems, response to fires or explosions, shutdown of operations, response to unplanned sudden or non-sudden releases of hazardous waste); and their roles in implementing the hazardous waste contingency plan relevant to their positions.

Training is required for all employees who are involved with hazardous waste management, such as personnel at the areas of generation, their supervisors, hi-low drivers who move the hazardous waste, shipping dock employees, emergency coordinators, or anyone else who handles the waste. You must tailor your training specifically to the hazardous waste procedures relevant to your facility and employee involvement.

Some common hazardous waste training violations include:

- ✓ Missing or incomplete documented records of required training for Large Quantity Generators:
  - Job title omitted
  - Job description omitted
  - Employee name omitted
- ✓ Missing written training description for Large Quantity Generators
- ✓ Using another required emergency training program which does not have a portion clearly devoted to the hazardous waste requirements
- ✓ Failing to have employees trained annually for Large Quantity Generators

.TABLE 2.7: TRAINING REQUIREMENTS

	CESQG	SQG	LQG
Training type	No specific requirements under hazardous waste rules	Informal training or with other training[1]	Classroom setting or on the job instruction with written description of training program type and amount of training[1]
Written training records	No specific requirements	Recommended as documentation of training session	Required written records. ✓ For employees who left company, keep records at lease 3 years from last day worked. ✓ For current employees, keep records until facility closes.

Training Schedule	No specific requirements	No specific requirements	✓ Initial training within 6 months of starting job involving hazardous waste ✓ Annual training (during calendar year, not necessarily 1 year from date of initial training)
Trainer Qualifications	No specific requirements	No specific requirements. May be someone in-house or hire outside trainer	Someone with significant experience in hazardous waste management. May be someone in-house or hire outside trainer.
[1] This training can be combined with other training sessions as long as a portion of the training is clearly devoted to hazardous waste requirements. Training under the Hazard Communication Employee Right-to-Know Standard (Right-to-Know) alone, as required by MIOSHA, is not sufficient to meet the hazardous waste training requirements. Review the WHMD **"Personnel Training Requirements for Fully Regulated Generators of Hazardous Waste"** handout for more information on training requirements.			

UNIVERSAL WASTE

Small Quantity Handlers and Large Quantity Handlers must inform employees who handle or have responsibility for managing universal waste about the proper handling and emergency procedures relative to their responsibilities and appropriate for the type of universal waste handled at that facility.

2.5 Medical Waste

A food processor that has incidental medical waste from using a first aid kit to respond to an employee's minor accident, or provides a sharps container to collect needles, syringes, and lancets used for checking blood glucose levels, is not considered a medical waste producing facility under the WHMD Medical Waste Regulatory Program unless they have an on-site health clinic (e.g. provide nursing or physician care services).

It is important to discuss requirements for first aid providers and the standard for "Bloodborne Infectious Diseases" with the MIOSHA Consultation, Education, and Training Division at 517-322-1809. Information is available at www.michigan.gov/miosha.

Filled sharps containers can be returned to a mail back program the company uses or picked up by a medical waste disposal company. A list of disposal companies is available at www.michigan.gov/deqmedwaste. Blood soaked/saturated items can be sent out through a medical waste disposal service as well. If employees ask about how to handle their sharps from home, refer them to the brochure "**The Point Is…Needles Hurt**" for information about disposal options for sharps). The brochure and list of local community sharps collection programs is on the web site.

Discuss with your solid waste hauler/disposal company what type of related wastes they will accept.

Additional information is available at **www.michigan.gov/deqmedwaste**. Questions about medical waste can be directed to Andrew Shannon at (517) 335-1146 or John Gohlke at (517) 241-1320 or send e-mail to **MedicalWaste@michigan.gov**.

WHERE TO GO FOR HELP

SUBJECT: **Compliance Assistance**

CONTACT: DEQ, Environmental Science and Services Division, Environmental Assistance Program
(800) 662-9278
www.michigan.gov/deq (select "Key Topics", "Compliance Assistance"

SUBJECT: **Confidential and Free Waste Reduction Assessments**

CONTACT: DEQ, Environmental Science and Services Division, RETAP Coordinator
(800) 662-9278
www.michigan.gov/deqessd (scroll down to "Retired Engineers Technical Assistance Program")

SUBJECT: **Hazardous waste and liquid industrial waste permitted and registered transporters**

CONTACT: DEQ, Waste and Hazardous Materials Division, Hazardous Waste Program
(734) 432-1256
www.michigan.gov/deqwaste (select "Hazardous and Liquid Industrial Waste Transporters")

SUBJECT: **Hazardous waste licensed treatment, storage, and disposal facilities**

CONTACT: DEQ, Waste and Hazardous Materials Division, Hazardous Waste Program
(517) 373-9875
www.michigan.gov/deqwaste (select "Hazardous and Liquid Industrial Waste" then "Hazardous and Liquid Industrial Waste Management")

SUBJECT: **Household Hazardous Waste Collection Programs**

CONTACT: DEQ, Environmental Science and Services Division
(800) 662-9278
www.michigan.gov/deqrecycling or www.earth911.org

SUBJECT: **Solid Waste Landfills**

CONTACT: DEQ, Waste and Hazardous Materials Division, District office
See Appendix C for a listing of district office telephone numbers
www.michigan.gov/deqwaste (select "Solid Waste" then "Solid Waste Facilities
for map and lists of landfills)

SUBJECT: **Waste Manifests**

CONTACT: DEQ, Waste and Hazardous Materials Division, Manifest Unit
(517) 373-1217
www.michigan.gov/deqwaste (select "Hazardous and Liquid Industrial Waste" then "Hazardous and Liquid Industrial Waste Management")

PUBLICATIONS:
1. Manifest Tracking Form
2. Large Quantity Generator's Tracking System for Hazardous Waste Manifests
3. Small Quantity Generator's Tracking System for Hazardous Waste and All Liquid Industrial Waste Shipments

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SUBJECT: **Hazardous waste site identification number (EPA number)**

CONTACT: DEQ, Waste and Hazardous Materials Division, Notification Coordinator
(517) 335-5035
www.michigan.gov/deqwaste (select "Michigan Site Identification Form and Directions EQP5150")

PUBLICATIONS:
1. Site Identification Form (EQP 5150)

SUBJECT: **Liquid, solid, and hazardous waste regulation questions and publications**

CONTACT: DEQ, Environmental Science and Services Division or WHMD District office
(800) 662-9278
www.deq.state.mi.us/pubcenter

PUBLICATIONS:
1. Directory of Environmental Testing Laboratories
2. Emergency Information Poster
3. Manifest Tracking Log
4. Personnel Training Requirements for Fully Regulated Generators of Hazardous Waste
5. Recycled Materials Market Directory
6. Required Weekly Hazardous Waste Maintenance Checklist
7. Electronic Equipment

SUBJECT: **Solid waste planning agency contacts**

CONTACT: DEQ, Waste and Hazardous Materials Division
(517) 335-4035
www.michigan.gov/deqwaste (select "Solid Waste")

SUBJECT: **Storage and disposal of tires; scrap tire registered haulers and collection sites**

CONTACT: DEQ, Waste and Hazardous Materials Division, Scrap Tire Program
(517) 335-4035
www.michigan.gov/deqwaste (select "Scrap Tires")

SUBJECT: **Transportation compliance assistance publications**

CONTACT: Michigan State Police, Motor Carrier Division
(517) 336.6580
www.michigan.gov/msp

Michigan Center for Truck Safety
800-682-4682
www.truckingsafety.org

SUBJECT: **Hazardous Materials Transportation**

CONTACT: U.S. Department of Transportation
(800) 467-4922 or (517) 377-1866
http://hazmat.dot.gov

SUBJECT: **Federal waste compliance assistance publications**

CONTACT: U.S. Environmental Protection Agency
www.epa.gov/epaoswer/osw/index.htm

PUBLICATIONS:
1. RCRA Orientation Manual
2. RCRA, Superfund, and EPCRA Hotline Training Modules
3. RCRA Online

SUBJECT: **Material Safety Data Sheets**

WEB SITE: www.hazard.com

SUBJECT: **Oil filters**

CONTACT: Oil Filters Manufacturing Council
(800) 993-4583
www.filtercouncil.org

PUBLICATIONS:
1. How to Choose a Filter Management Service
2. Proper Hot Draining Steps
3. Recycling Used Oil Filters at the Shop

SUBJECT: **PCB information**

CONTACT: EPA Region 5
(312) 886-1334

WEB SITE: www.epa.gov/pcb

SUBJECT: **Waste recycling and material exchange options**

CONTACT: DEQ, Environmental Science and Services Division, Recycling Coordinator
(800) 662-9278
www.michigan.gov/deqrecycling

PUBLICATIONS:
1. Recycled Materials Market Directory
2. Materials Exchange

SUBJECT: **Medical Waste Program Questions**

CONTACT: DEQ, Waste and Hazardous Materials Division, Medical Waste Program
(517) 335-1146 or (517) 241-1320
e-mail: MedicalWaste@michigan.gov
www.michigan.gov/deqwaste (select "Medical Waste")

PUBLICATIONS:
1. Initial Application for Registration as a Producing Facility of Medical Waste (EQP 1700-1) (not available online)
2. Sample Medical Waste Management Plan